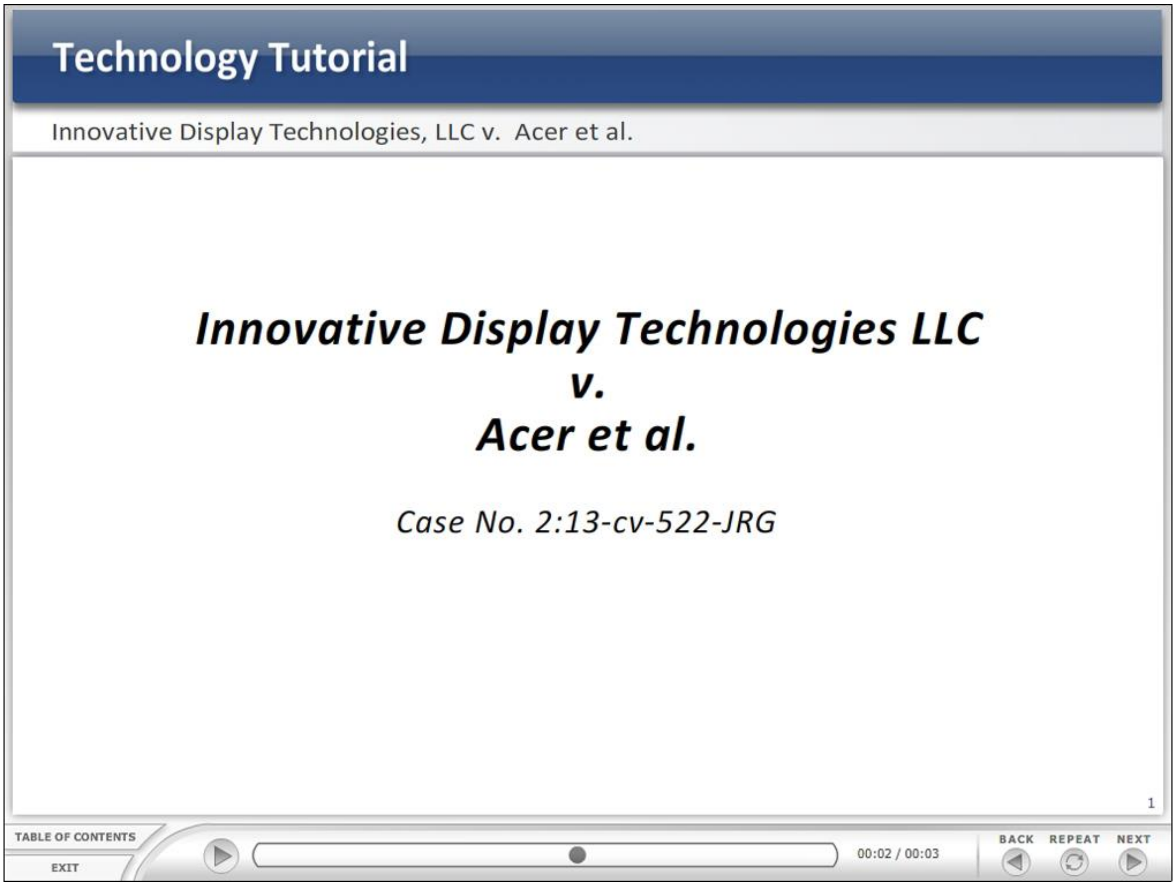
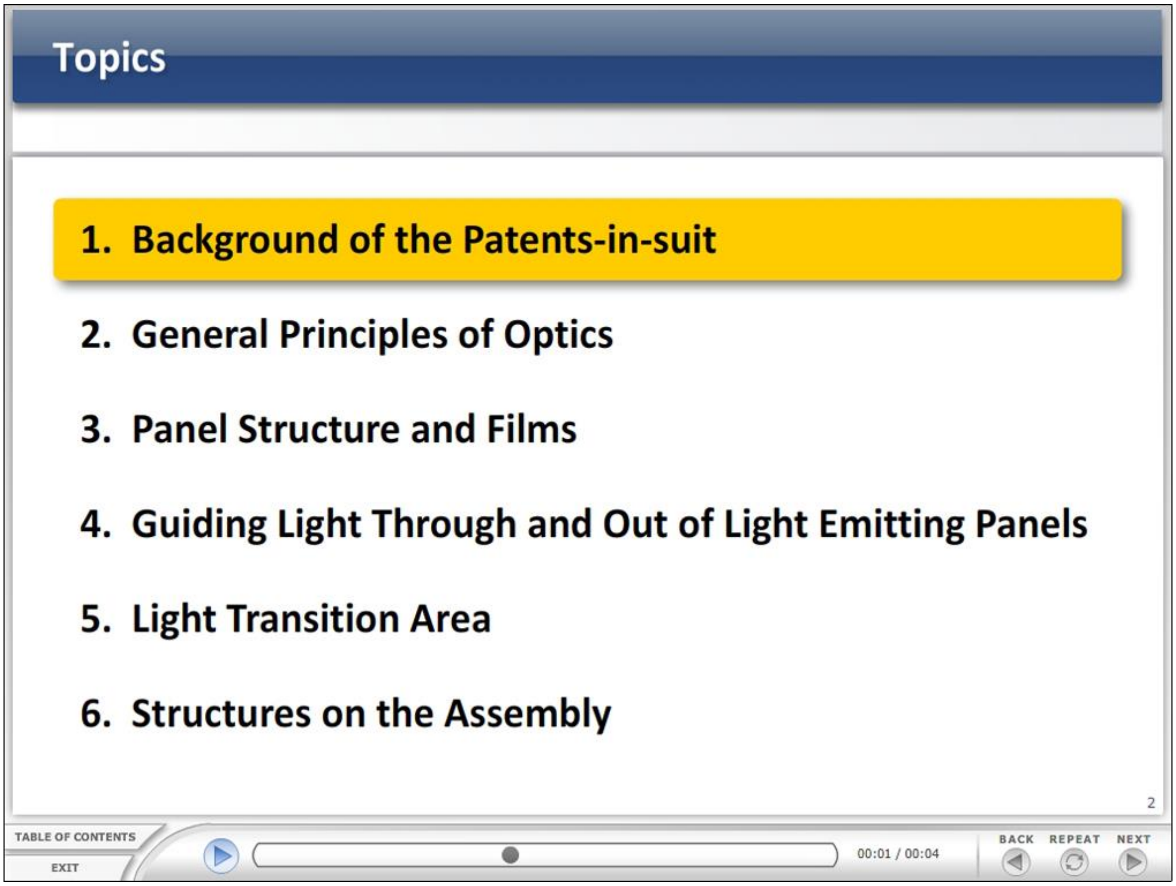
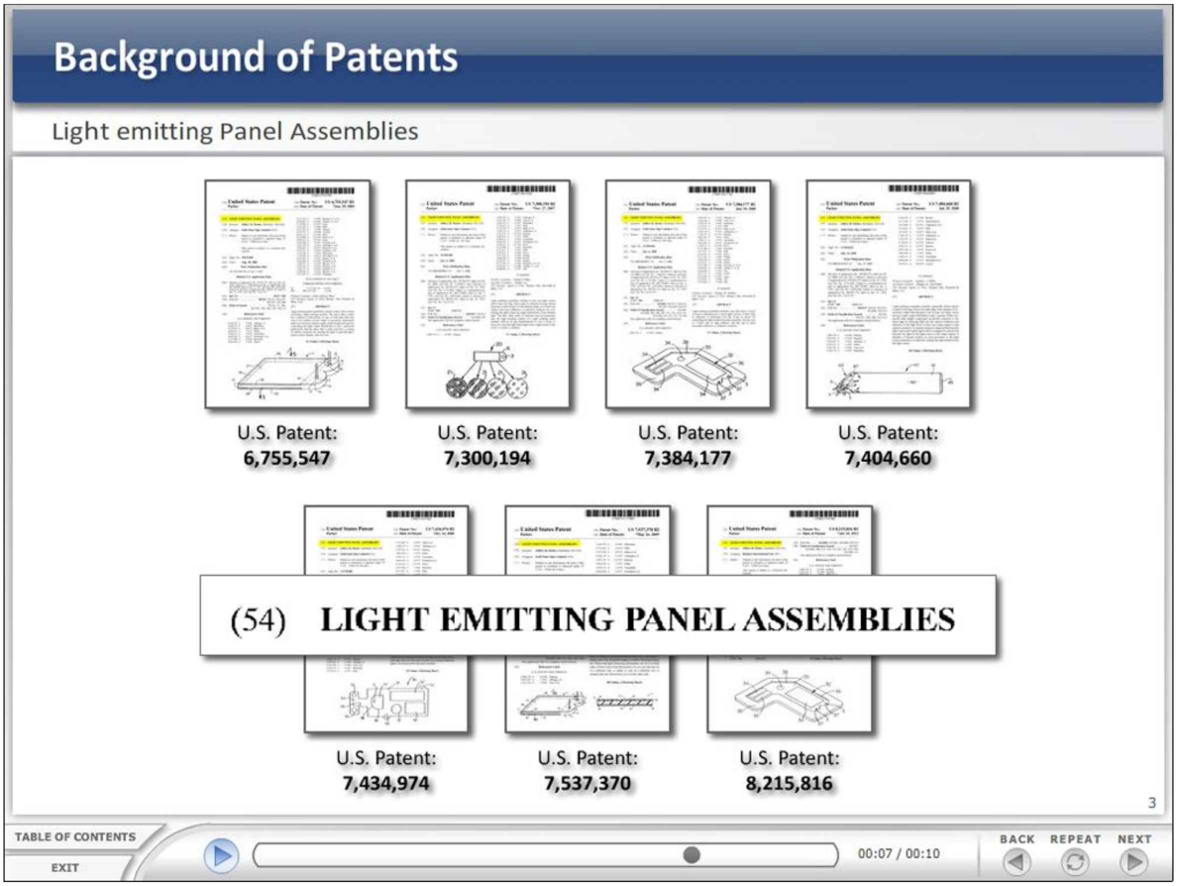
EXHIBIT 1



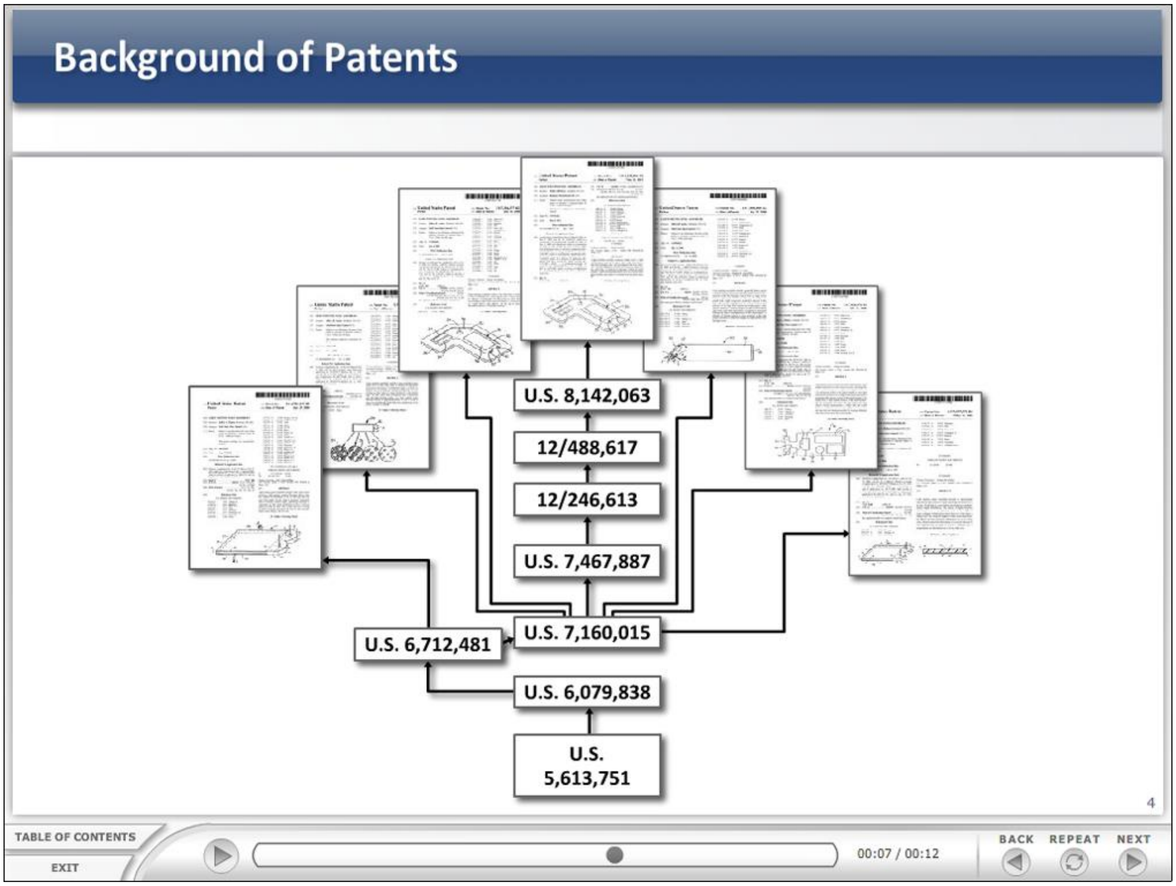
Welcome to the defendants' technology tutorial.



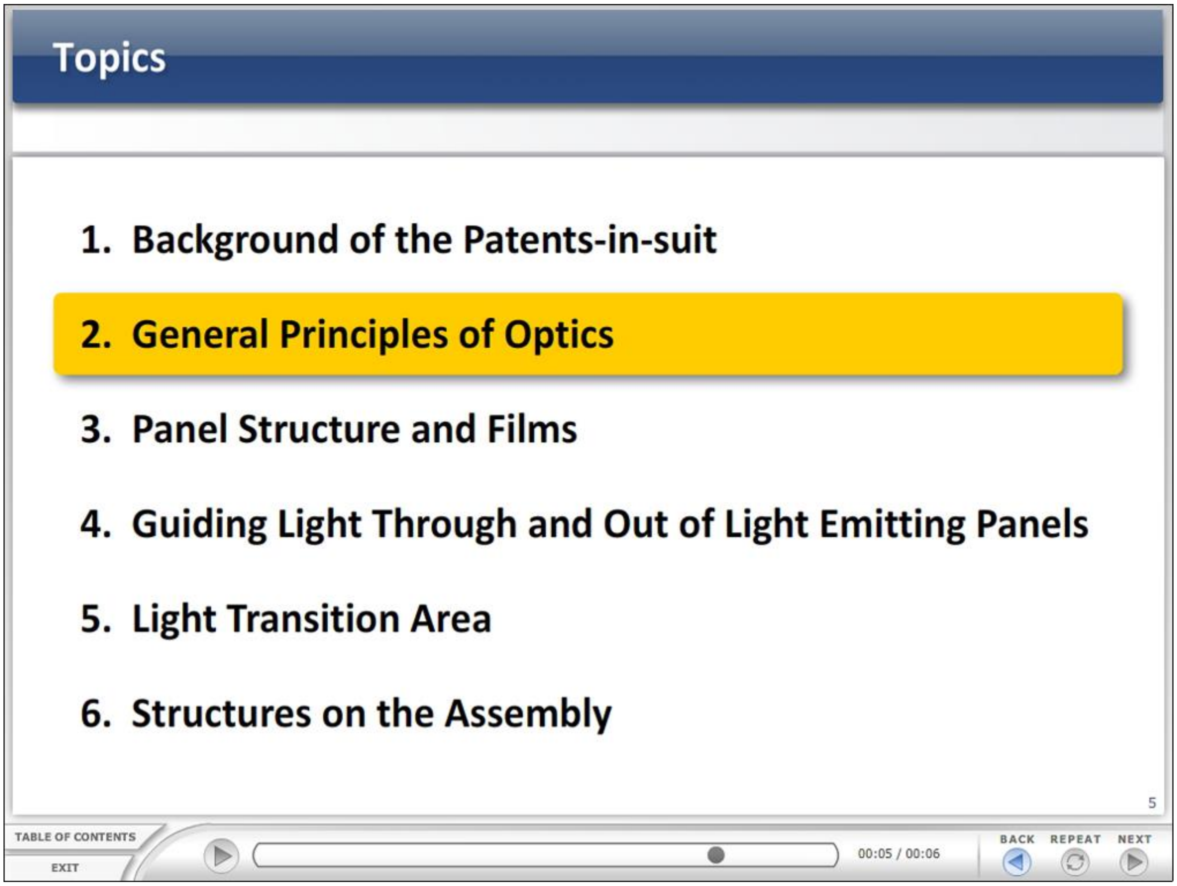
We will begin by discussing the background of the patents-in-suit.



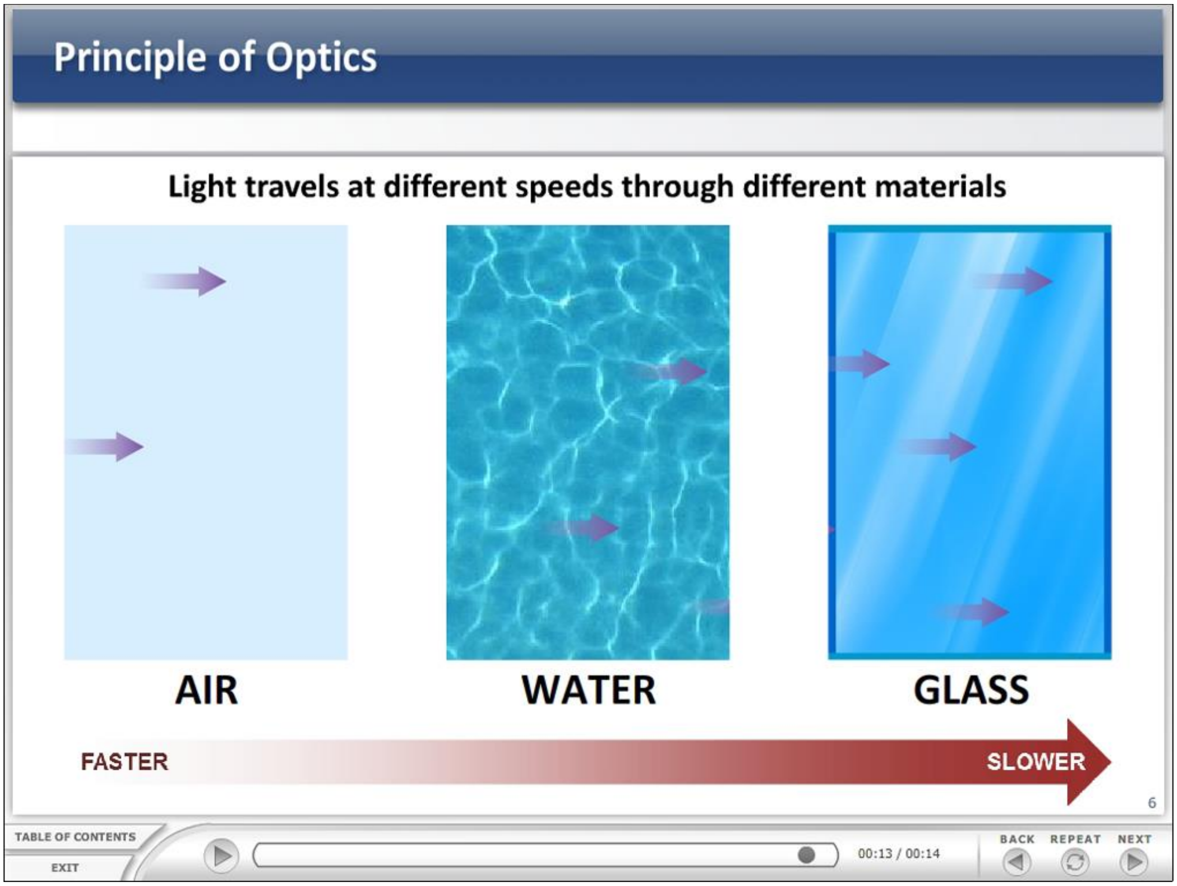
This tutorial will cover the basic technology and state of the art helpful to understand the patents-in-suit. There are 7 patents-in-suit in this case each titled "Light Emitting Panel Assemblies."



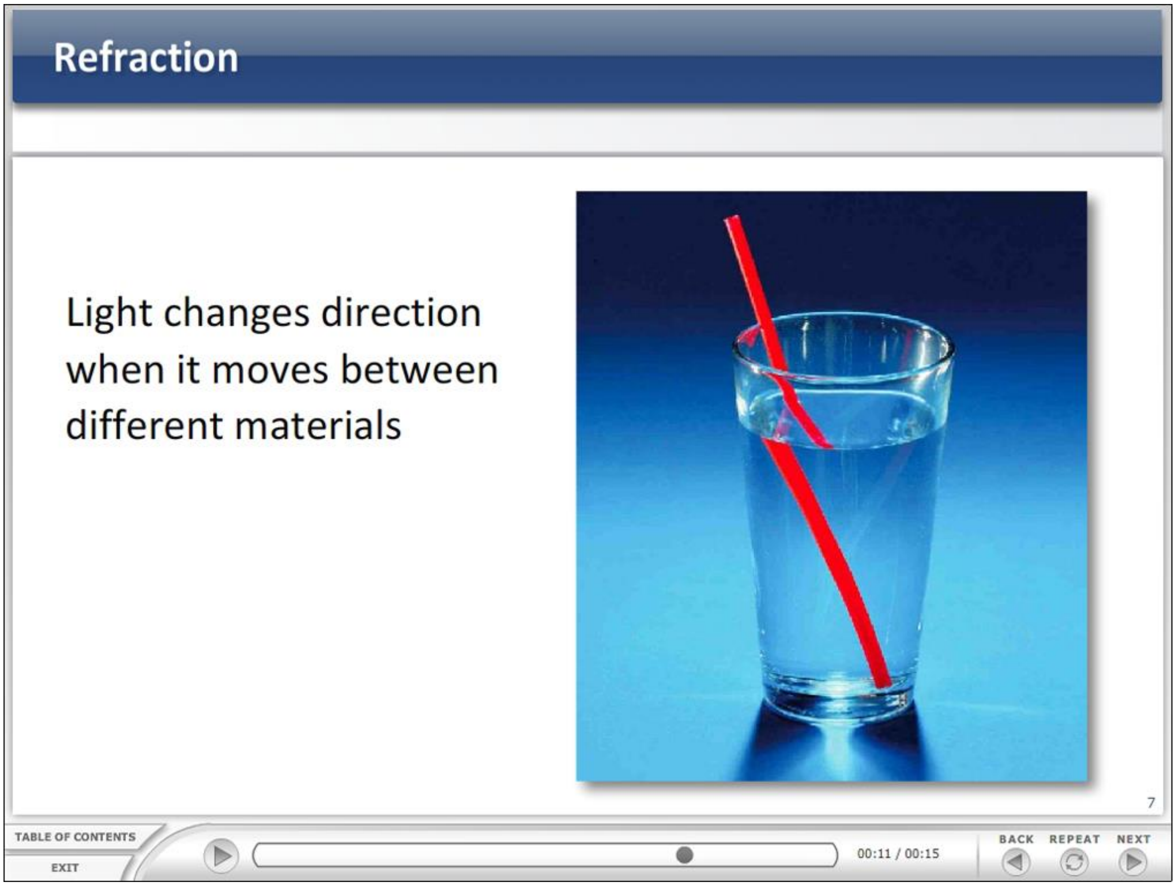
All seven patents-in-suit stem from the same root patent application, list the same named inventor, have nearly identical specifications, and relate to the same technology, namely configurations of light emitting panel assemblies.



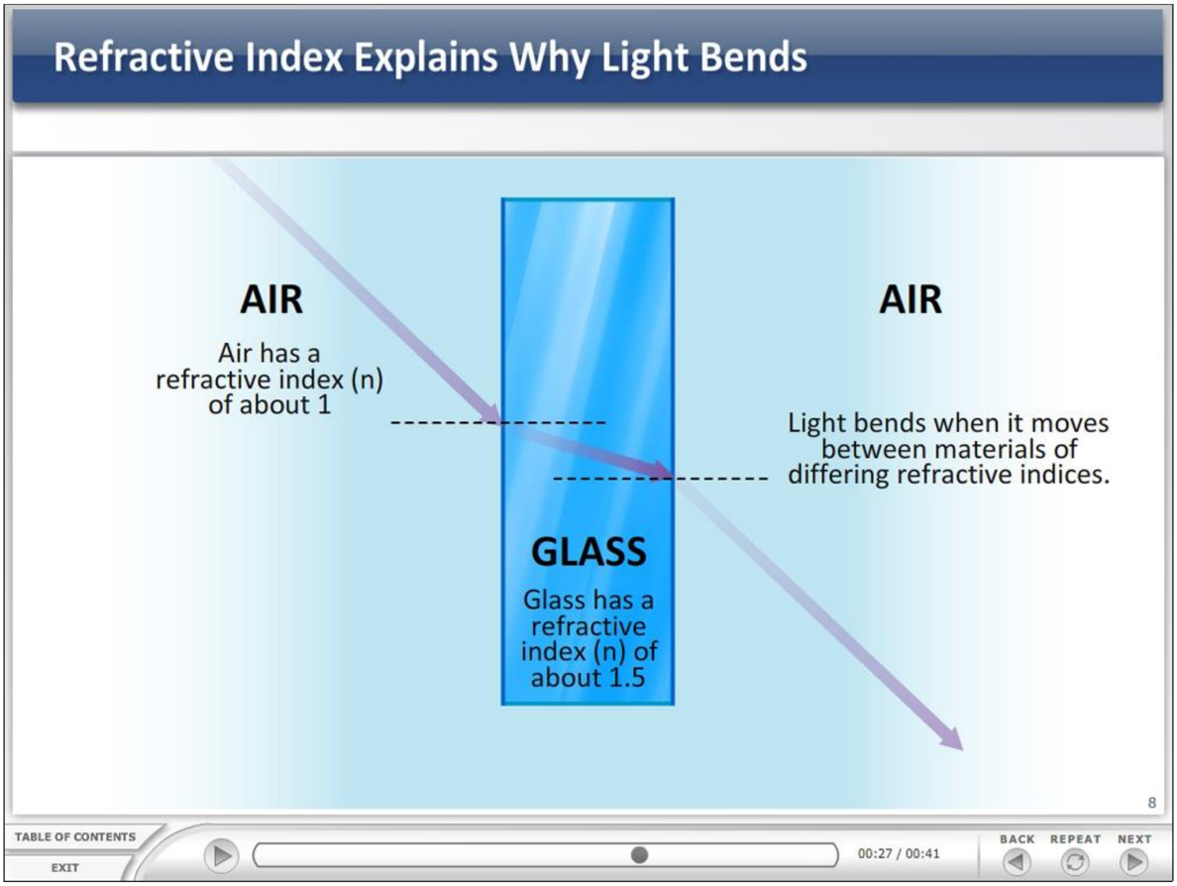
Next we will discuss general principals of Optics to assist with understanding the background technology of the patents-in-suit.



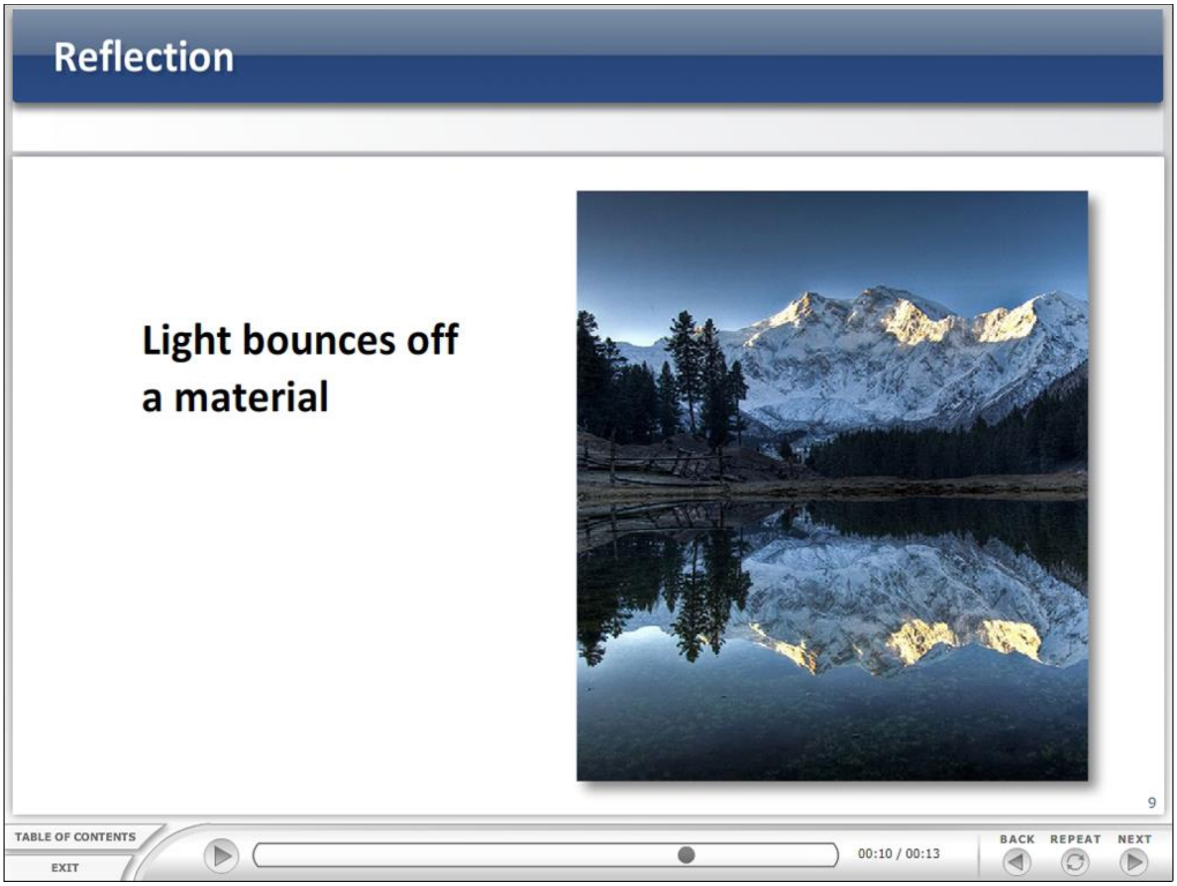
A key concept of optics is that light travels at different speeds in different media. In a vacuum, light travels at a speed that is a universal physical constant. Light travels through air at close to its speed in a vacuum. Light travels more slowly through other media, like water or glass.



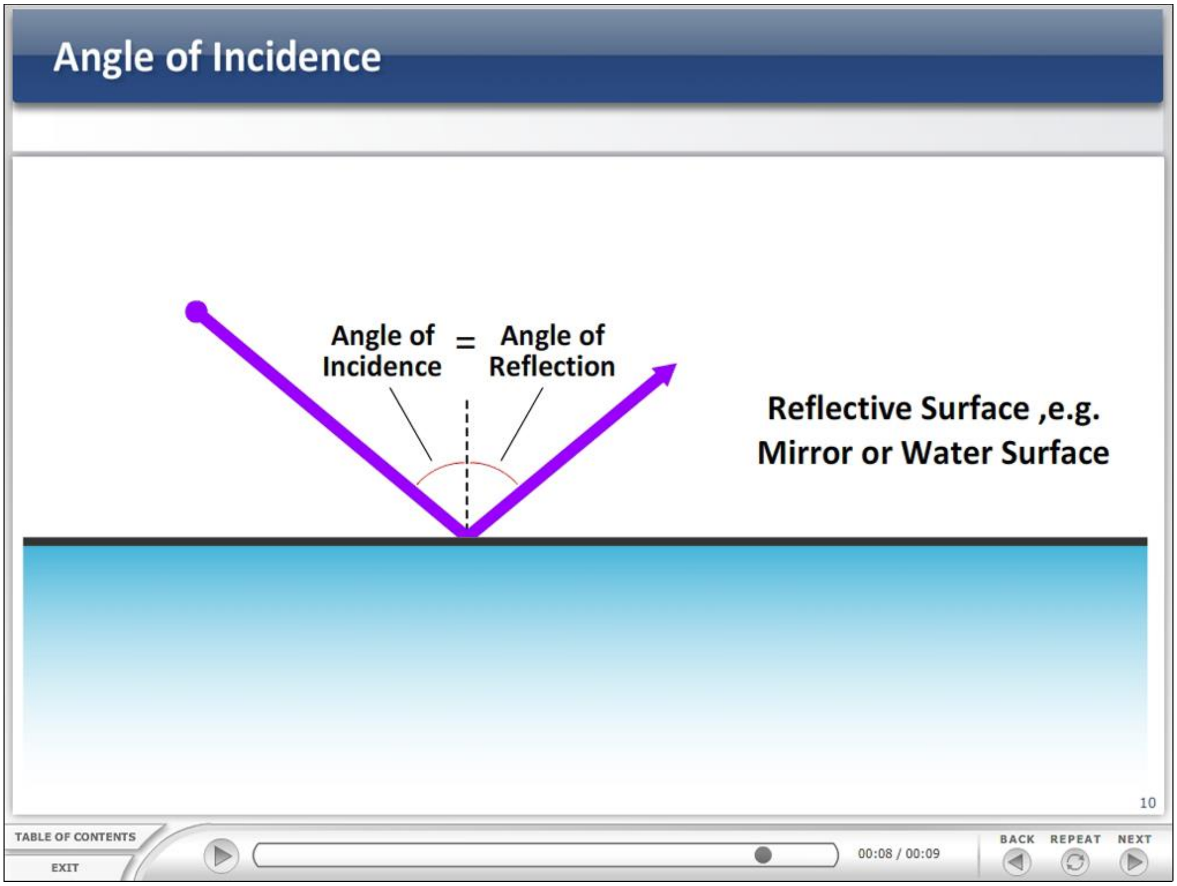
When light passes from one medium to another, it changes direction. This change in direction is known as refraction. Refraction explains, for example, why a straw in water appears "broken": the light bends as it moves from the water to the air, creating the illusion that the straw is broken into two pieces.



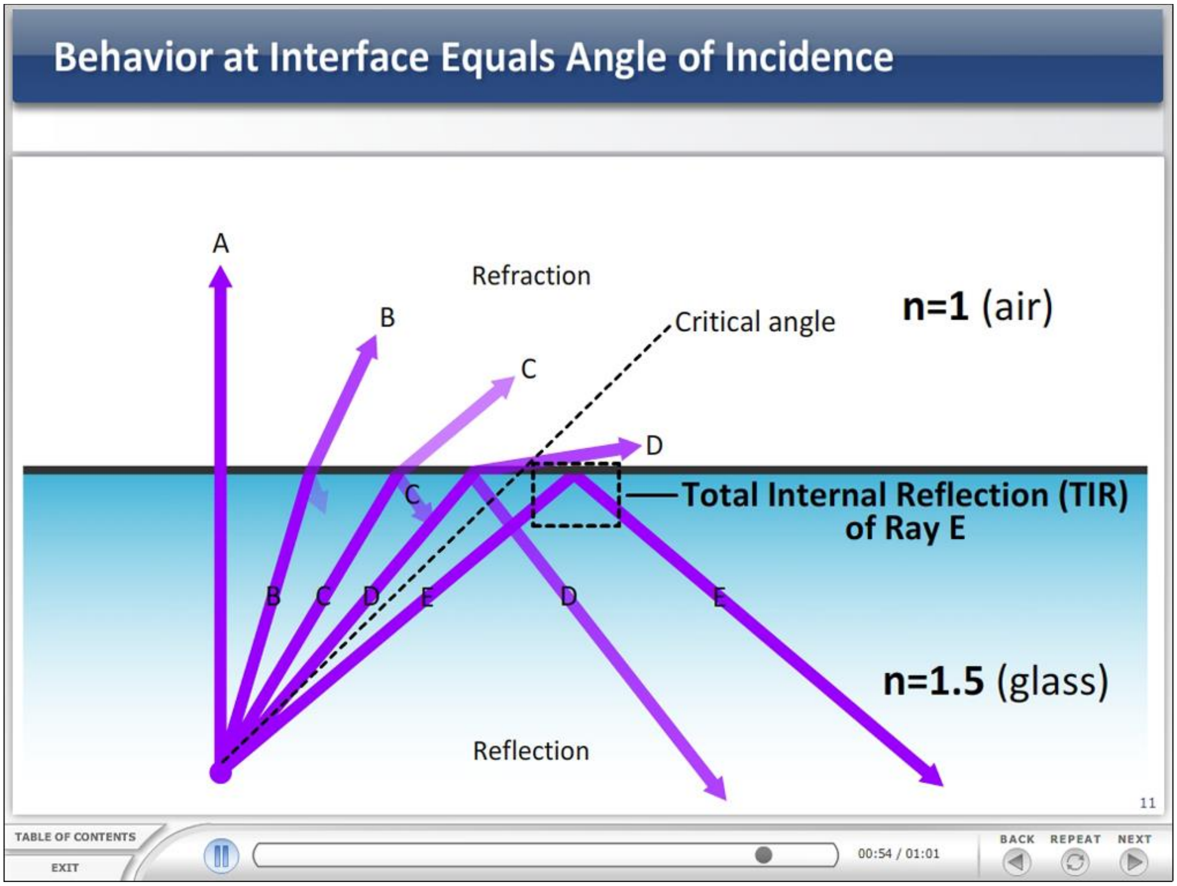
Refraction is caused by light changing speed as it travels between two media. The term refractive index is the measurement of the ratio between the speed of light in a vacuum, and the speed at which light travels in a material. Refractive index is denoted by the letter n. The refractive index of air is essentially 1. When light travels from the air, where it is moving faster, into glass, where it moves slower, it bends towards the normal of that interface. The “normal” is a line perpendicular to the surface. Similarly, when light leaves a slower medium, like glass, and enters a faster medium, like air, it bends again, this time away from perpendicular. The angle at which light is refracted is governed by what is known as Snell's Law, which is a simple equation that describes the relationship between angles of incidence and refraction.



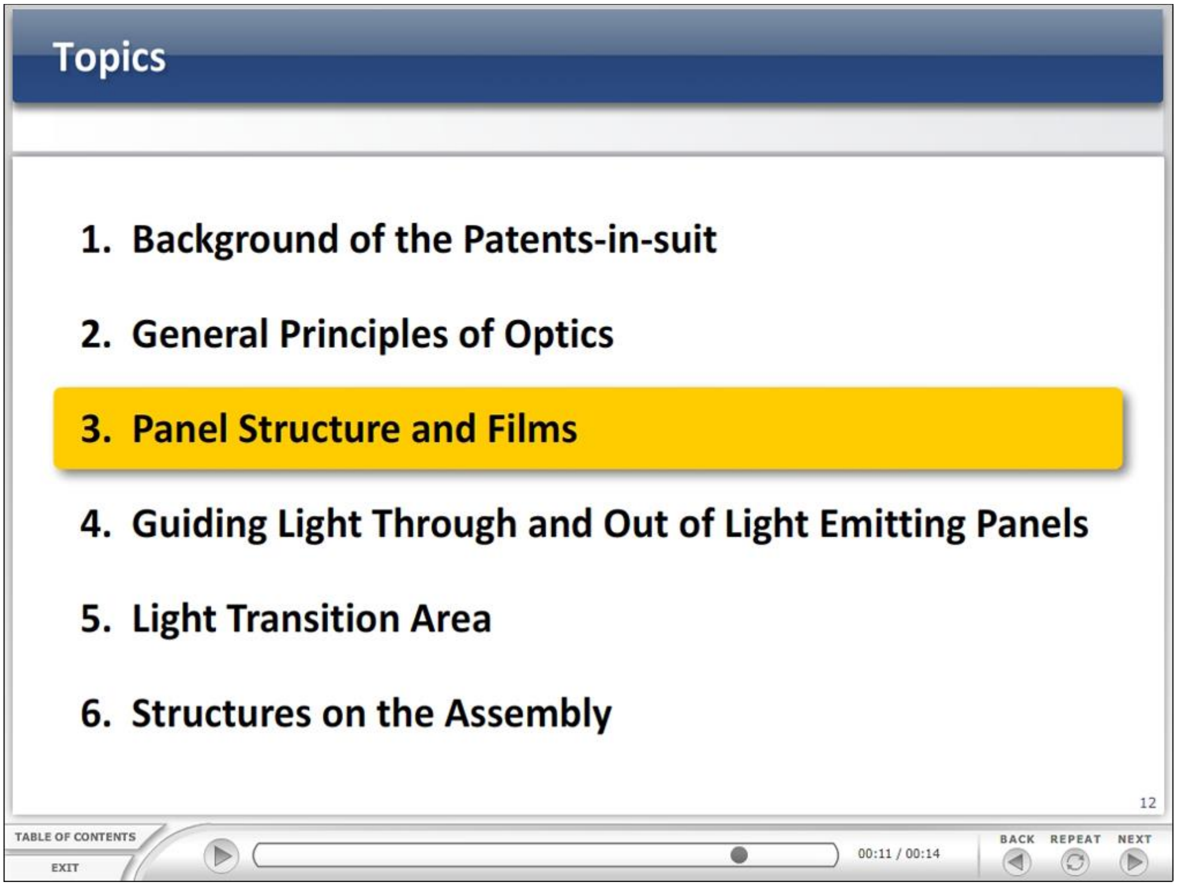
Another fundamental aspect of light is reflection. Reflection occurs when light traveling in one medium bounces off the surface of another medium. For example, here the light coming from the mountain reflects off the surface of the water, creating a reflection in the lake.



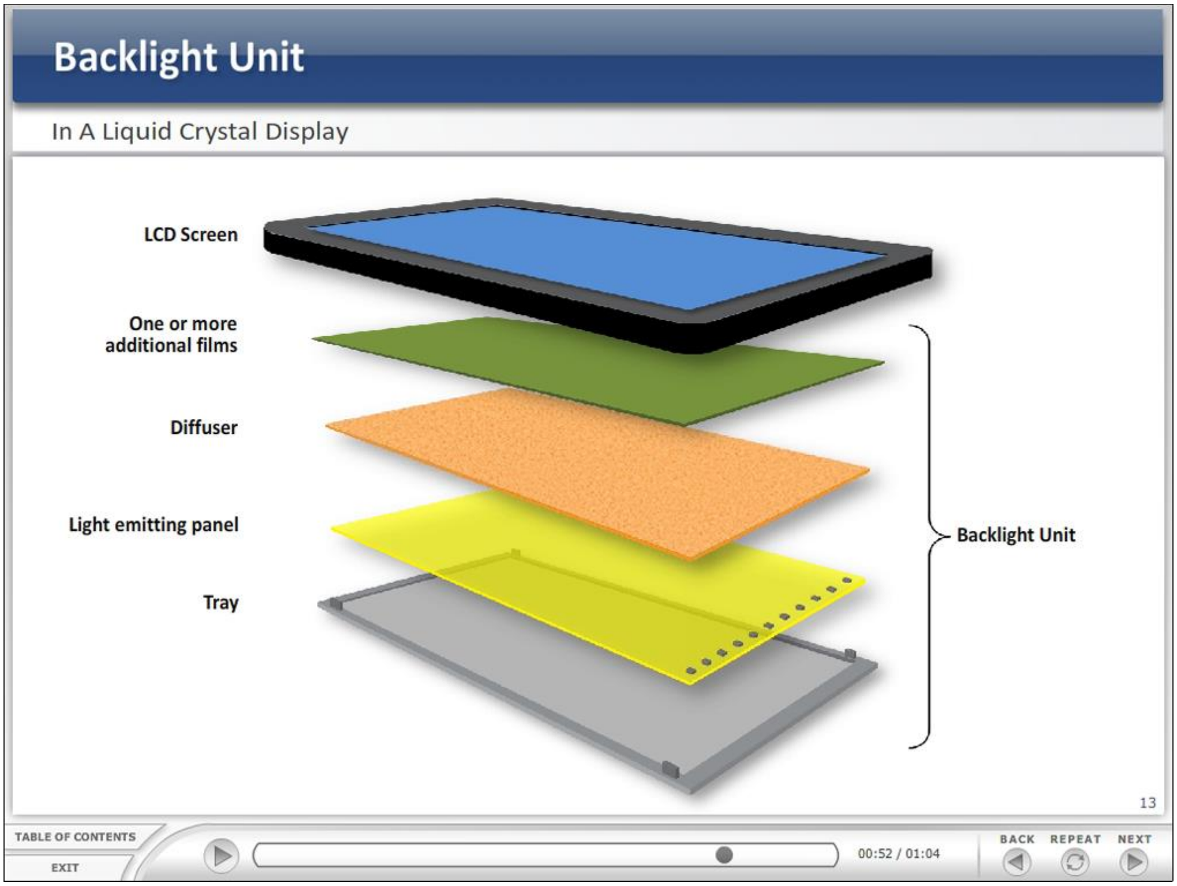
The law governing reflection is quite simple—the angle at which light reflects is the same as the angle at which the light strikes the surface. This is called the angle of incidence.



Let's look at an example of how angles of light and refractive index determine the way light reacts when it moves between two media. In this example, light is propagating through a first material that has an index of refraction of around 1.5, such as glass. When light hits the boundary with air nearly perpendicularly as shown by ray A, it mostly passes through the boundary into the air. A small amount of the light is reflected back into the glass. When light hits the boundary at an oblique angle, as shown by rays B, C, and D, the light partially refracts through the interface into the air, and partially reflects back into the glass. A special case of reflection can occur when light strikes a boundary of a different medium having a lower refractive index at an angle greater than what is called the critical angle. When this happens, all of the light is reflected, and none is refracted. This is known as "total internal reflection." Total internal reflection is an important concept in directing light through a light emitting panel structure. Here, when light hits the boundary at an angle greater than the critical angle as shown by ray E, refraction is no longer possible, and 100% of the light reflects back into the glass via total internal reflection, or TIR.

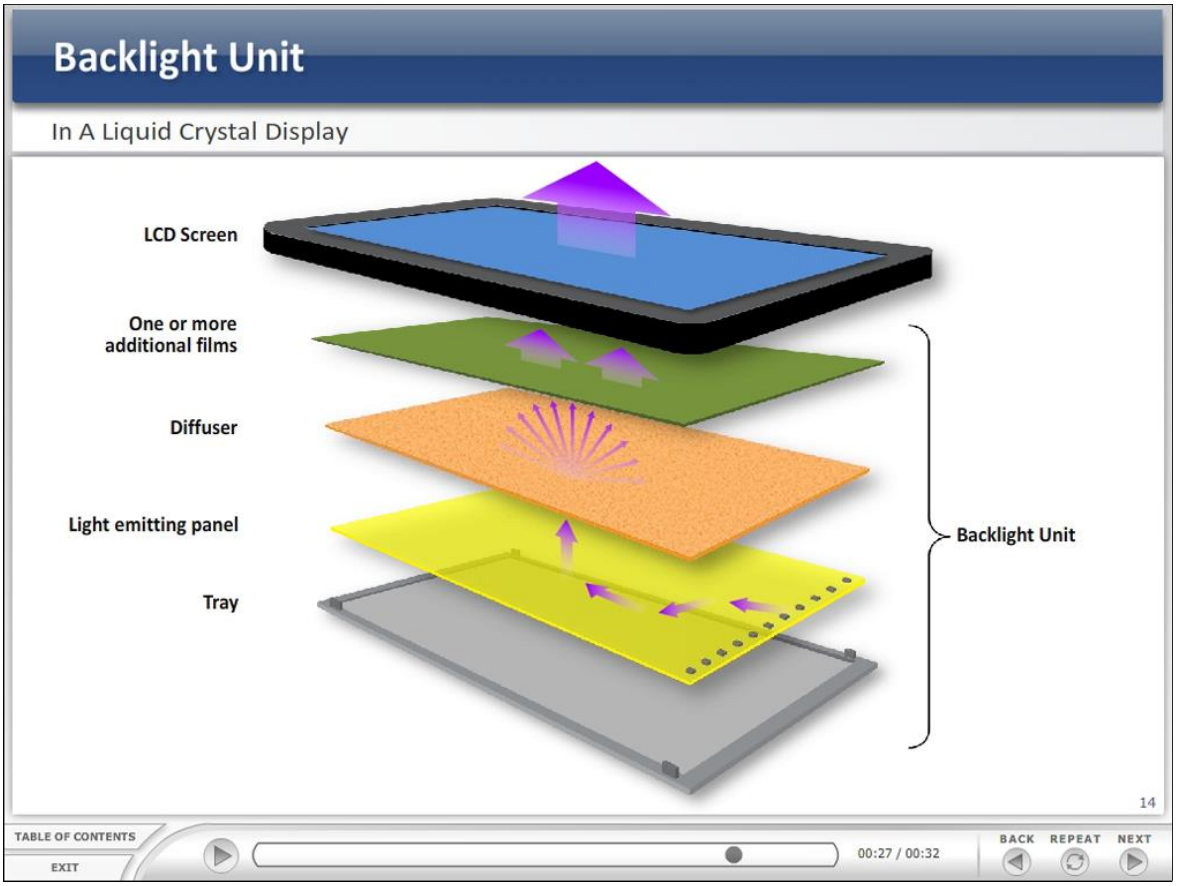


Next we will discuss the background technology of panel structure and films to explain how principles of optics have influenced the way backlight units (or light emitting assemblies) for products have been designed and used to output light in an efficient, uniform manner.



Backlight units have been used for many types of screens, including clocks, digital watches, smartphones, televisions, computer screens, ATM machines, car navigation, handheld video games systems, and others.

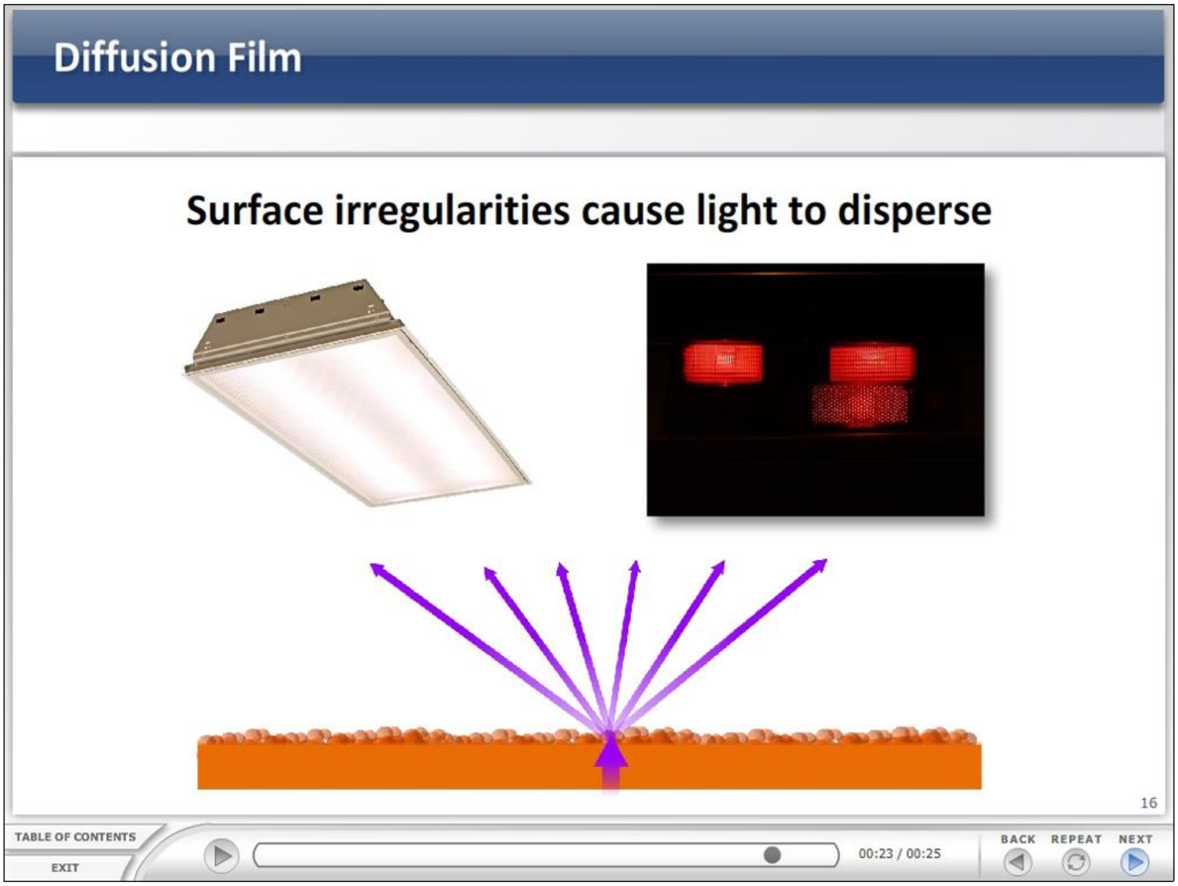
A backlight unit is made of a number of layers that are stacked on top of each other. In this example, within the tray or housing shown at the bottom is a light emitting panel, which accepts light from the light sources and transmits the light horizontally and upwards. The light then passes through a diffusion film, which scatters the light to make it more uniform. The light then enters one or more additional films, which may be additional diffusion films, brightness enhancing films, polarizers for causing the light to polarize, or anti-glare films which reduce reflection. In our example, we have chosen a liquid crystal display or LCD as the product to which the backlight unit is attached, and accordingly, the light exits through an LCD screen shown at the top of this example.



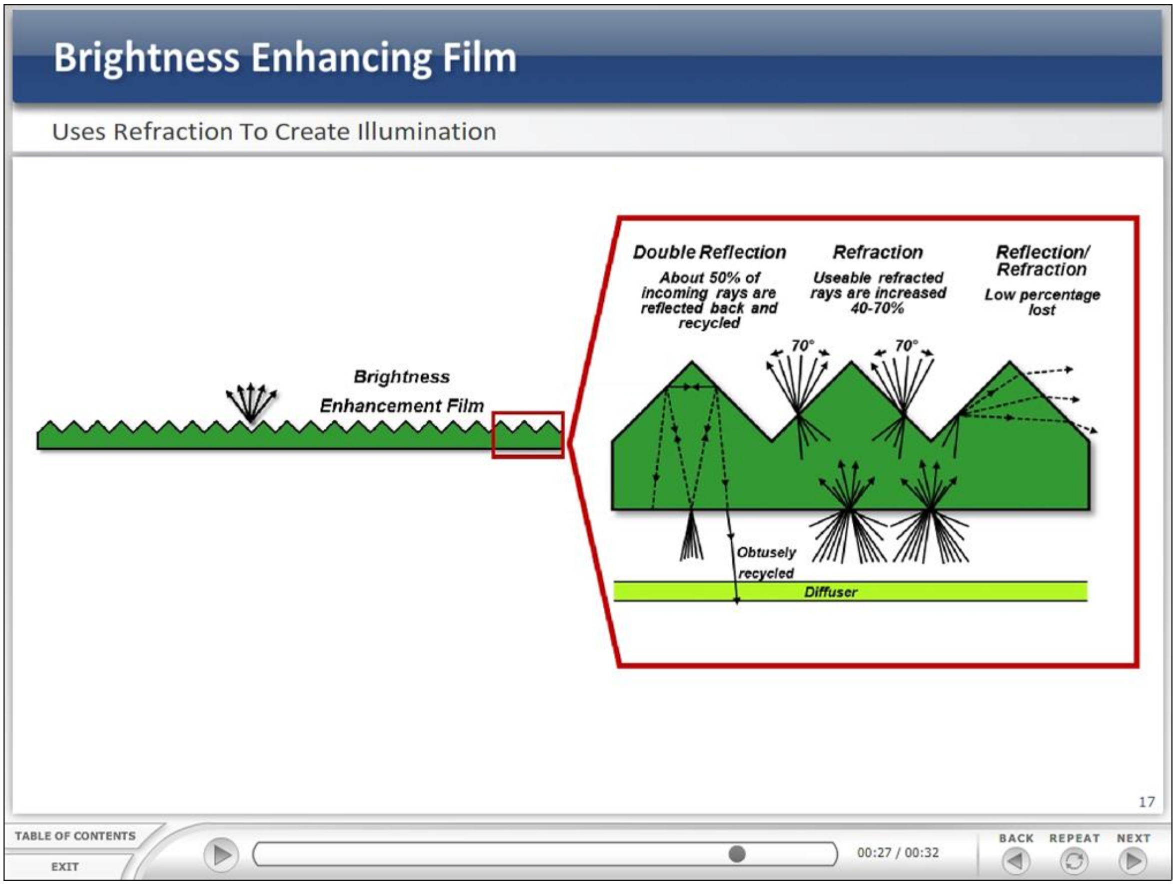
In this simple animation, we see that light from various light sources enters the light emitting panel and "bounces" around before exiting the top. The light then passes through the diffusion screen, where it is scattered to create a more uniform distribution. The light is adjusted in the additional films and passes through the product's screen at the top for display to the viewer.

The nature and use of the diffusion and additional films are a critical aspect of backlight unit design. Let's look more closely at a few of the most-commonly used films.

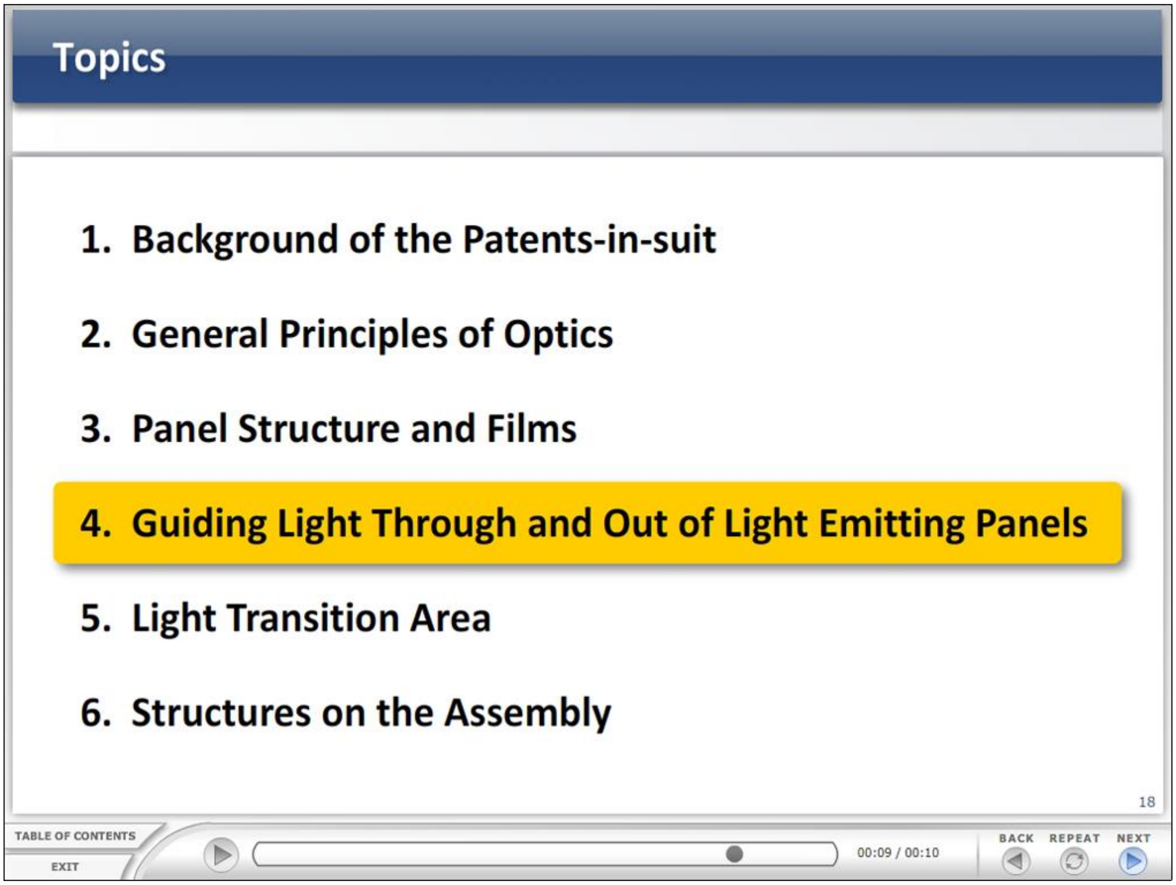
A diffusion film creates a more uniform distribution of light. These films use the characteristic of light that refraction or reflection causes light to scatter, or to come from a variety of directions. As an example, dust or fog in the air causes sunlight to scatter, creating soft, diffuse images.



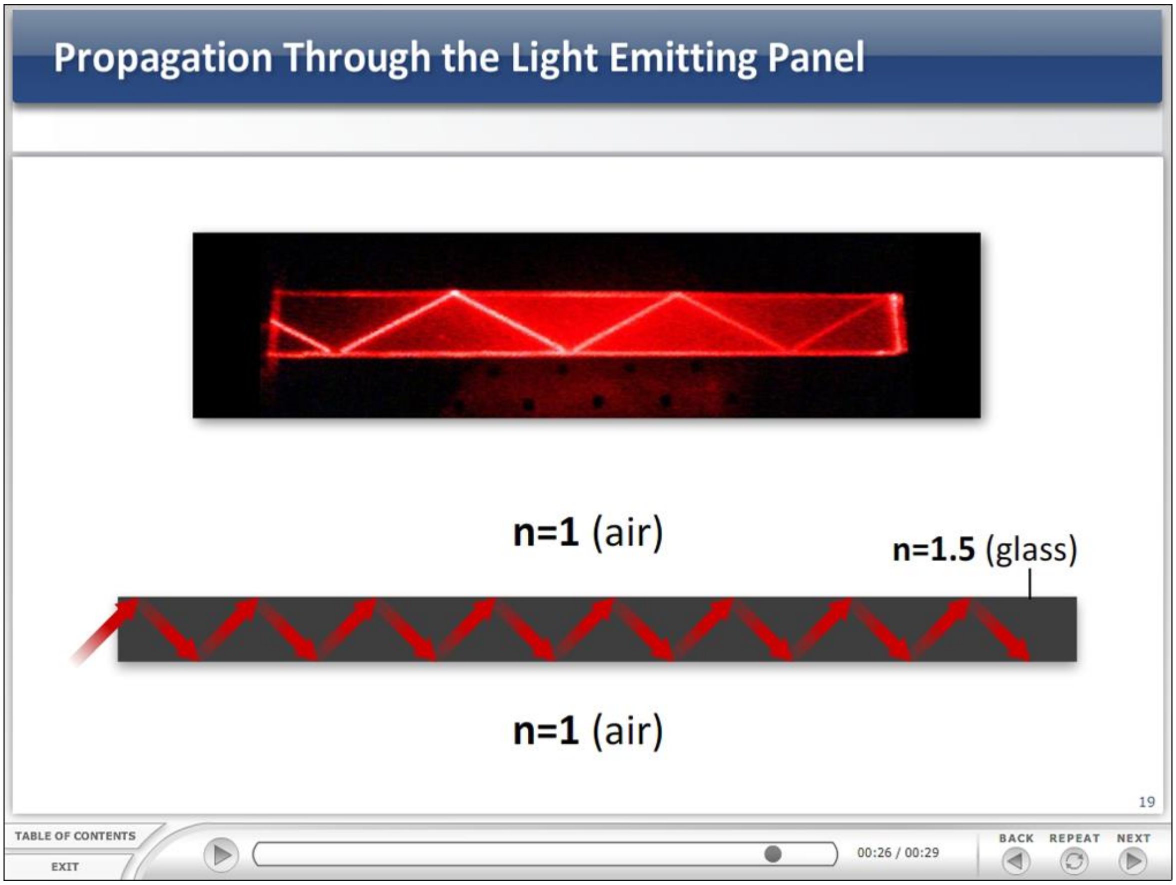
A diffusion film has surface irregularities, which cause light to disperse. This is similar, for example, to an industrial light covering which has a rough pattern. Similarly, tail lights on cars or bicycles typically have a rough covering which helps diffuse the light. A diffusion film is no different: it has irregularities on one or both surface to reflect and refract light, causing the light to disperse and thus scatter in a variety of directions. This causes light to exit the film in a more uniform manner than the light that enters the film.



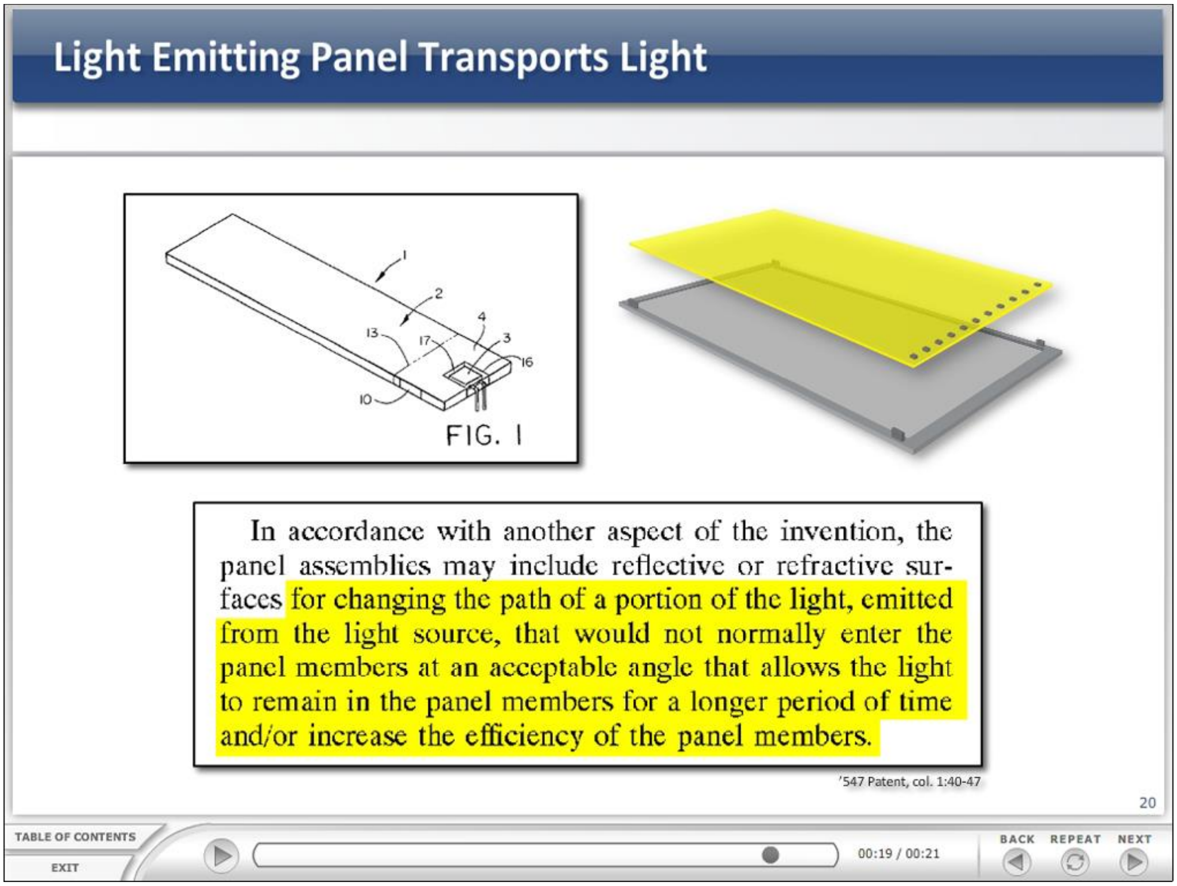
Brightness enhancing films use refraction to create illumination. In this example taken from 3M documentation around the time that the patent was filed, light enters the film from the bottom and, depending on the angle of the light with respect to the angle of the film, the light either reflects, refracts, or both. Light that is reflected is recycled and again emitted upwards through the brightness enhancing film. The result is that the light exiting from the top of the brightness enhancing film is more uniform and also brighter.



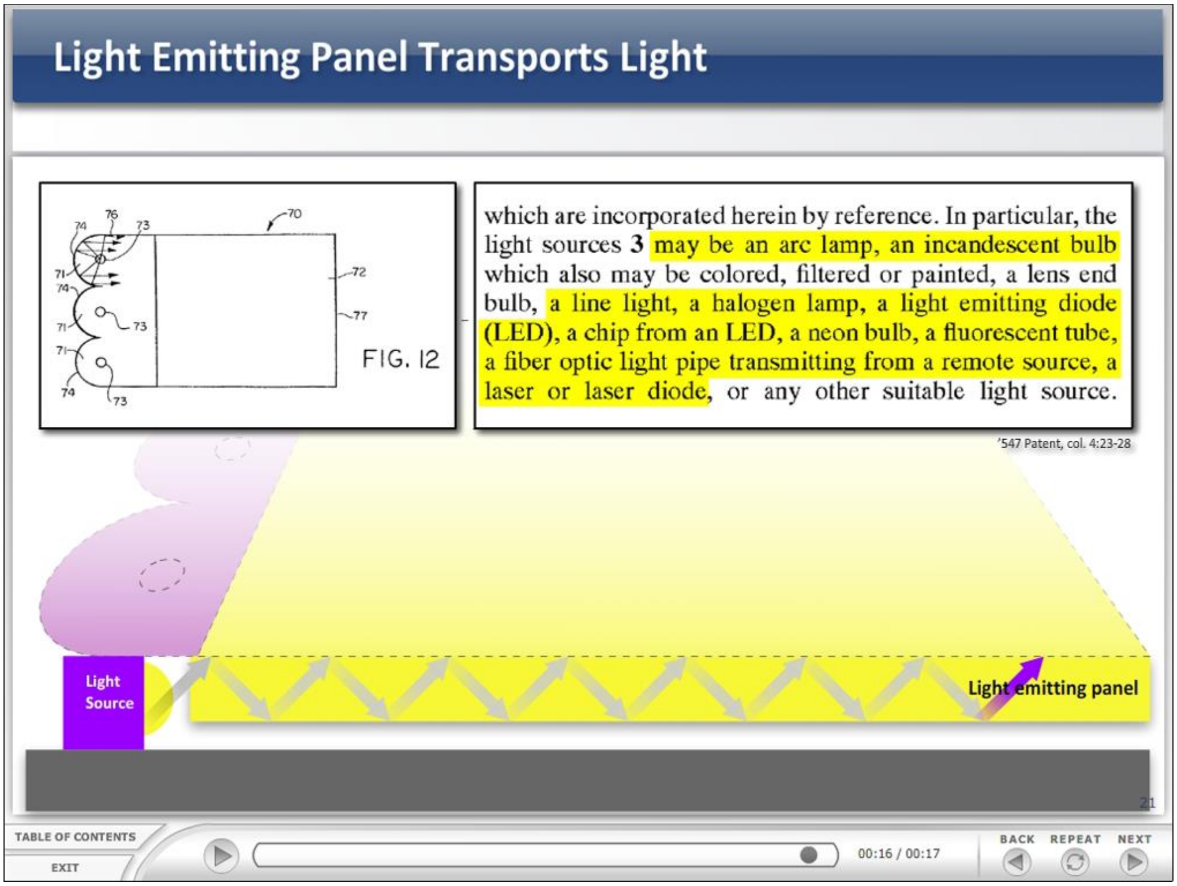
Having examined how the principles of optics relate to films, we next turn to how these basic principles of optics relate to guiding light through and out of light emitting panels as described by the patents-in-suit.



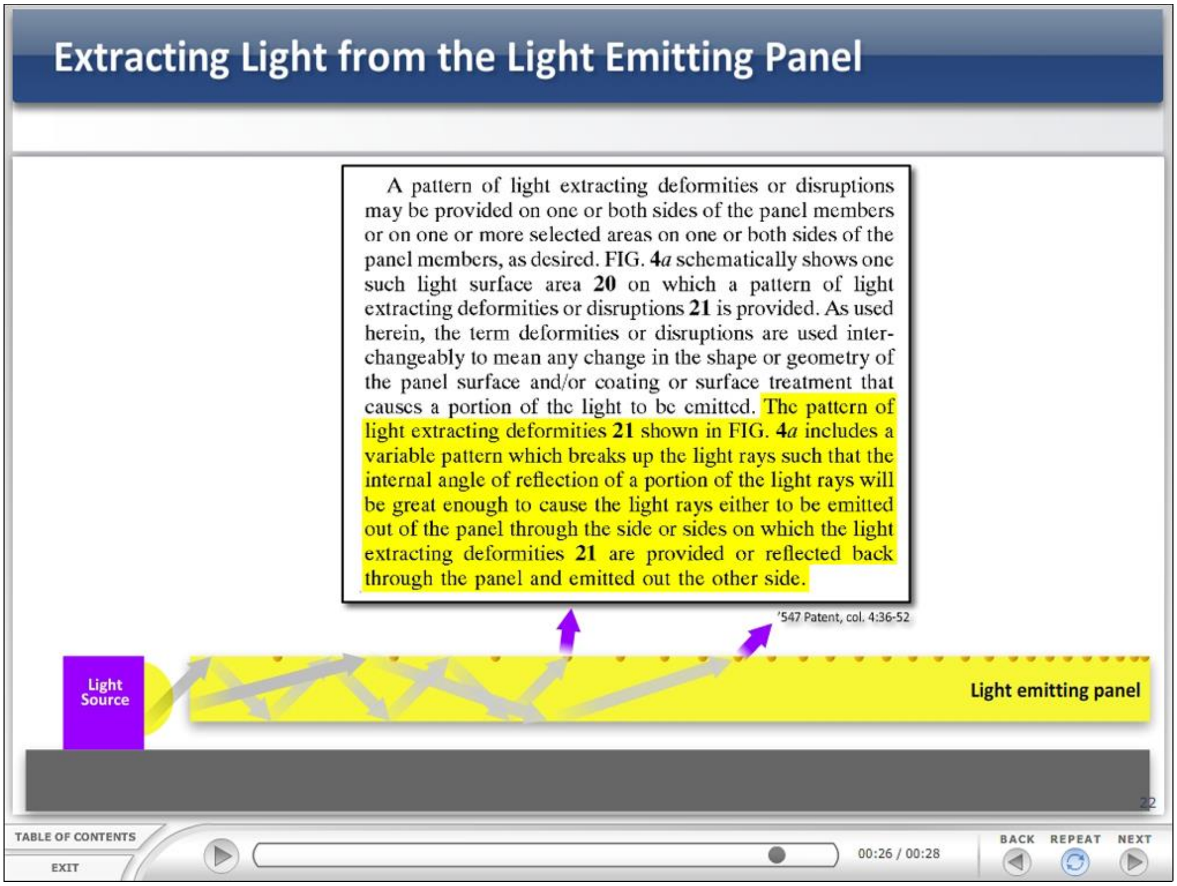
Total internal reflection can be used to propagate light through a material for long distances, for example through glass using multiple total internal reflections. This kind of structure is referred to in the patents-in-suit as a light emitting panel. To help keep the display thin, the light emitting panel is lit from one of its edges. Once it enters, the light will continue to propagate in the light emitting panel until it is absorbed or encounters a surface at which it can escape.



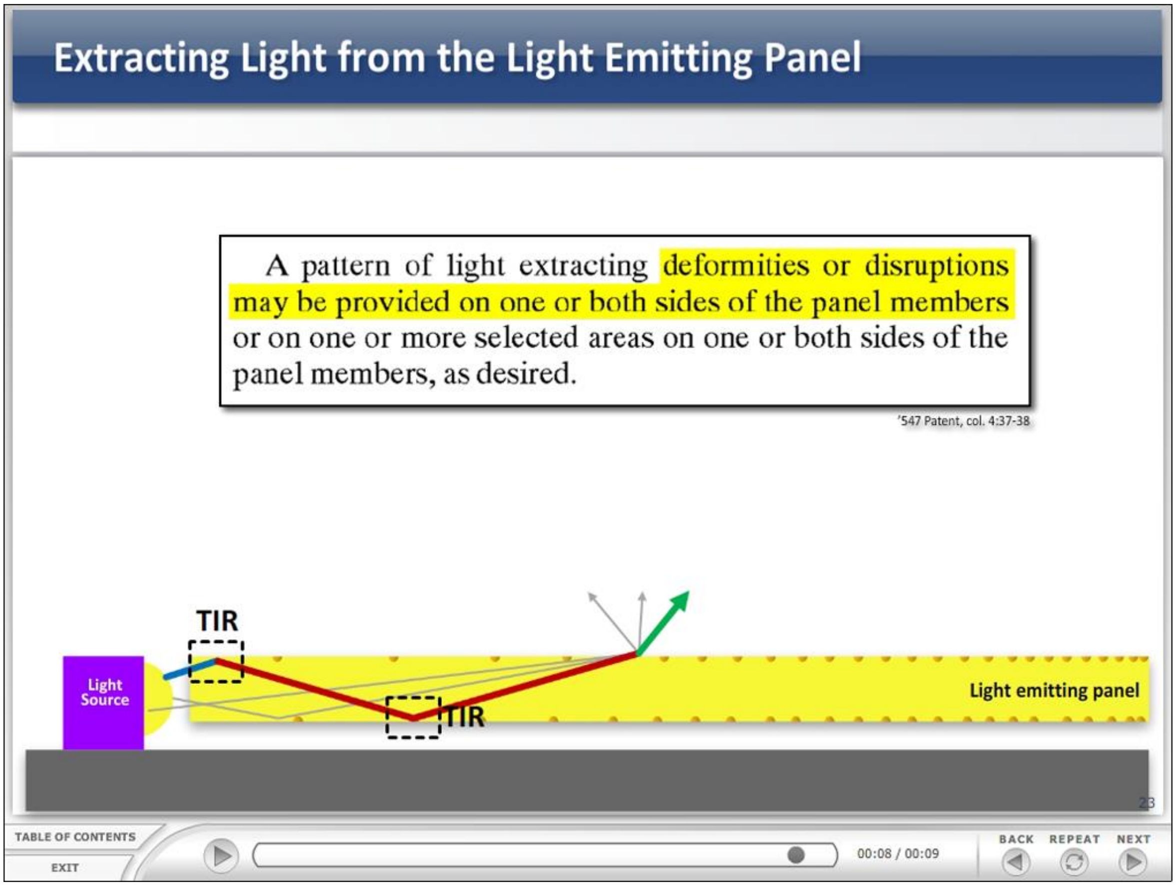
Importantly, one aspect of the patents-in-suit is for the light emitting panel to include refractive or reflective surfaces "for changing the path of a portion of the light, emitted from the light source, that would not normally enter the panel members at an acceptable angle that allows the light to remain in the panel members for a longer period of time." In other words, the light emitting panel has features that encourage total internal reflection.



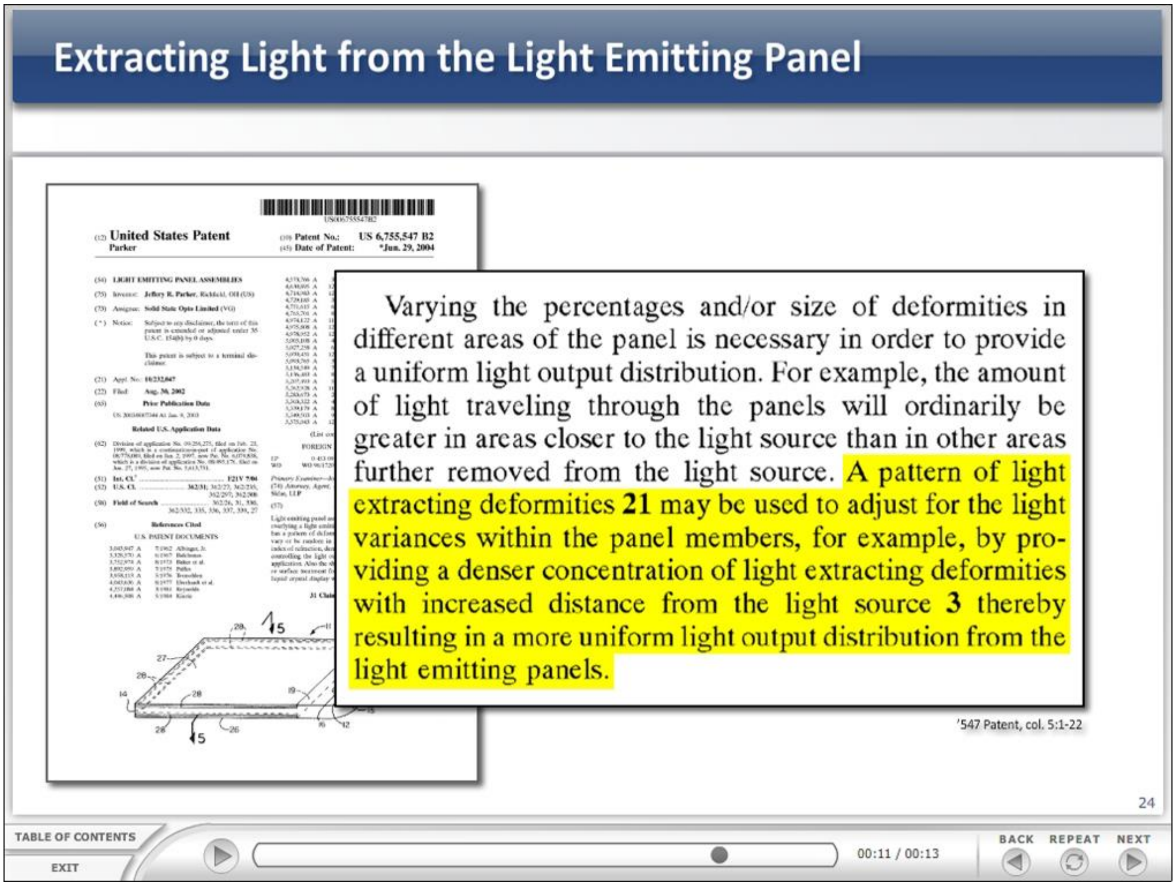
The light source may be an arc lamp, an incandescent bulb, a line light, a halogen lamp, a light emitting diode (LED), a neon bulb, a fluorescent tube, a fiber optic light pipe, or a laser, among other things.



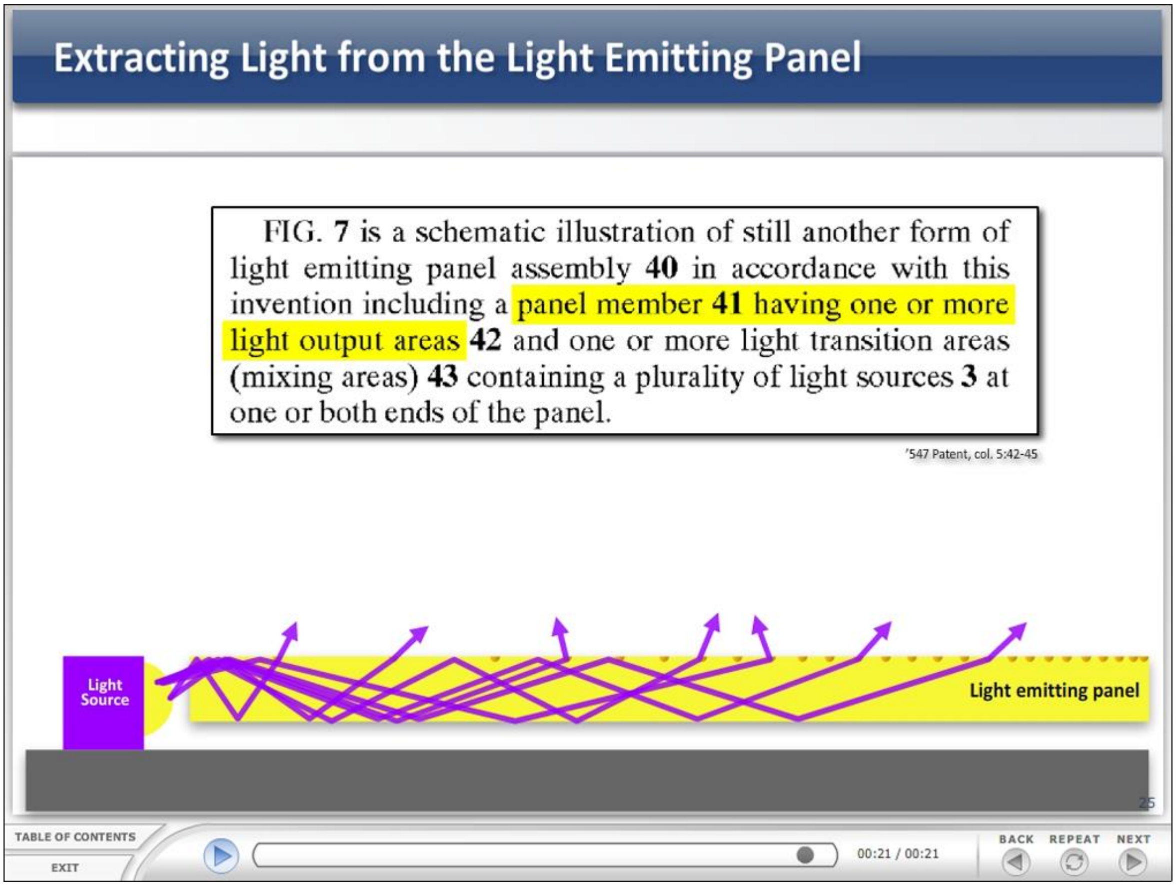
Now that we have explained how light enters the light emitting panel from the light source, we will explain how light is extracted from that panel. The patents-in-suit relate generally to using deformities on the light emitting panel to change the angle of a ray of light when that ray hits a deformity. The effect of the deformity is to scatter light in a variety of different directions, some of which permit the light to defeat the total internal reflection and escape through the top of the light emitting panel.



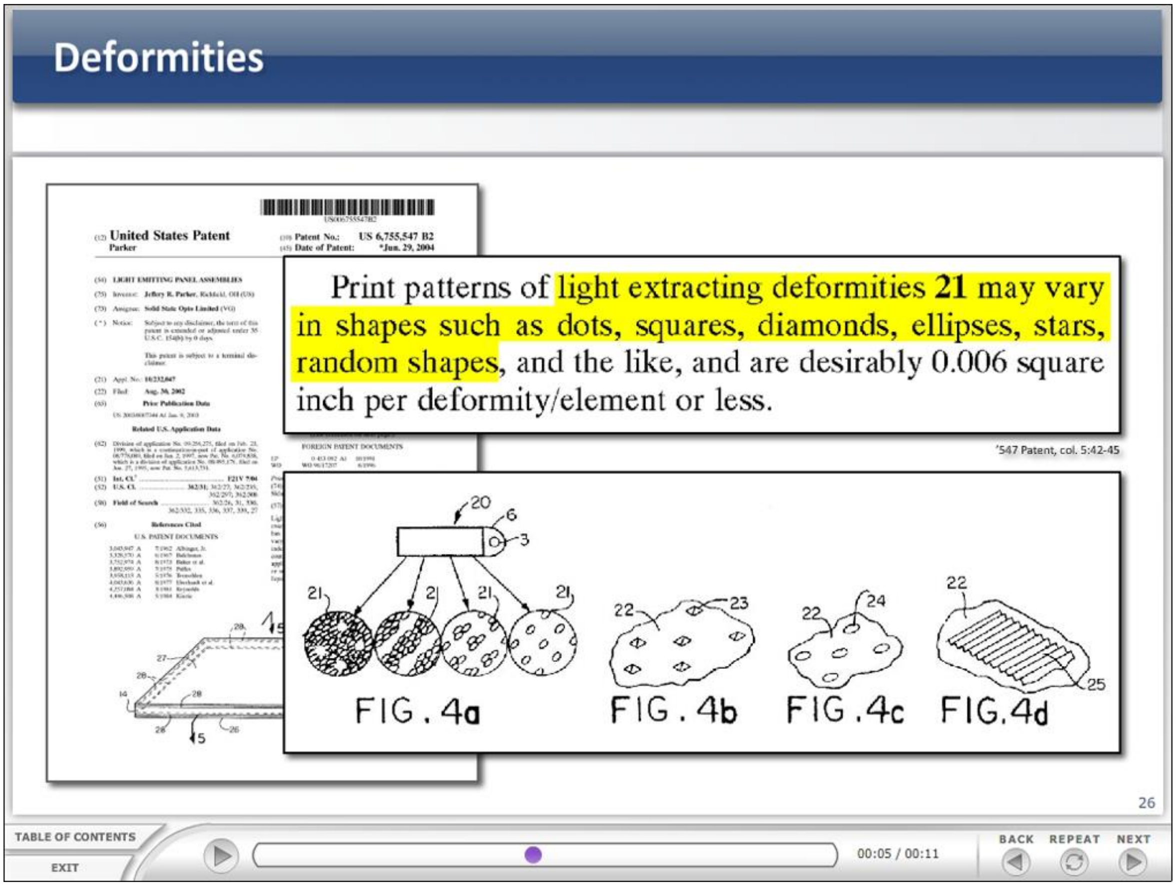
Deformities can also be present at the bottom surface of the light emitting panel to remove light from the panel and redirect it up to the viewer.



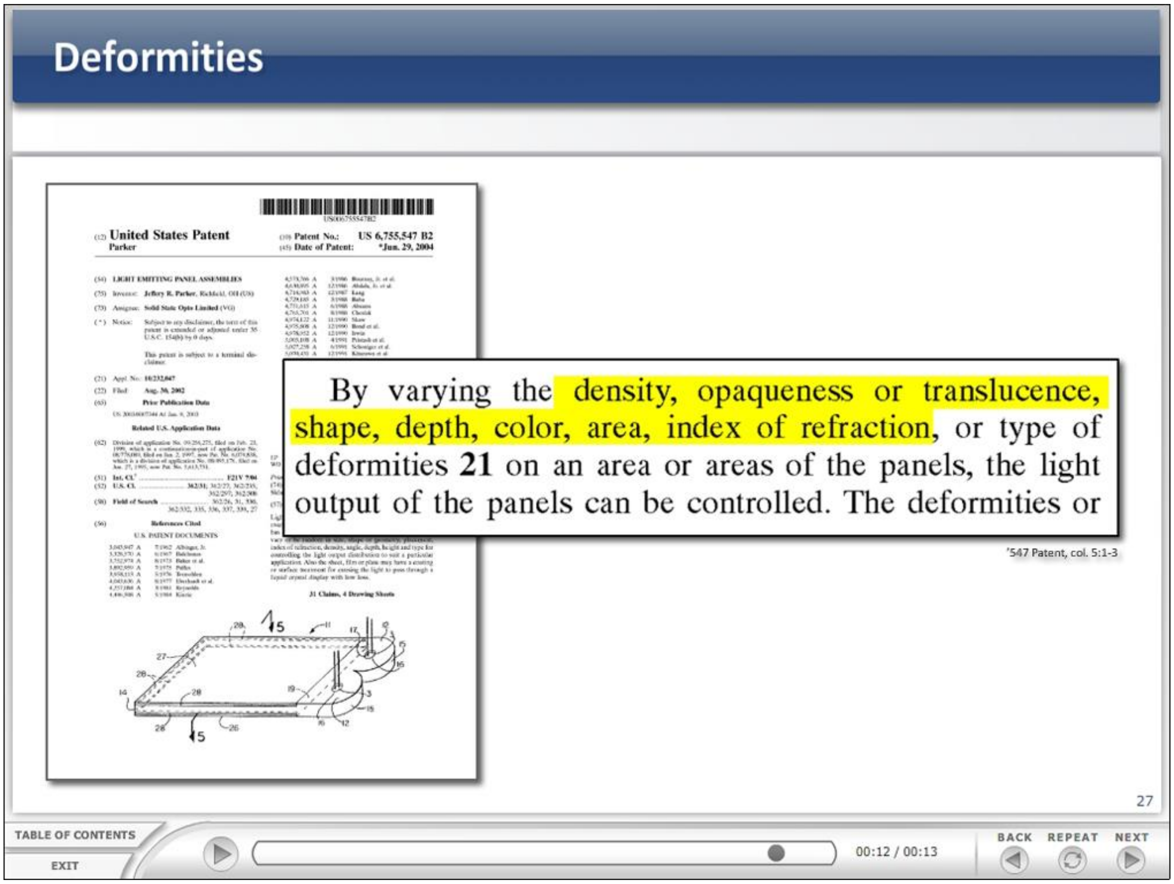
To extract light evenly across the length of the light emitting panel, it is important to vary the number or size of the deformities across its length. This is because there are more light rays closer to the light source and thus fewer deformities are needed to ensure that single light rays are redirected.



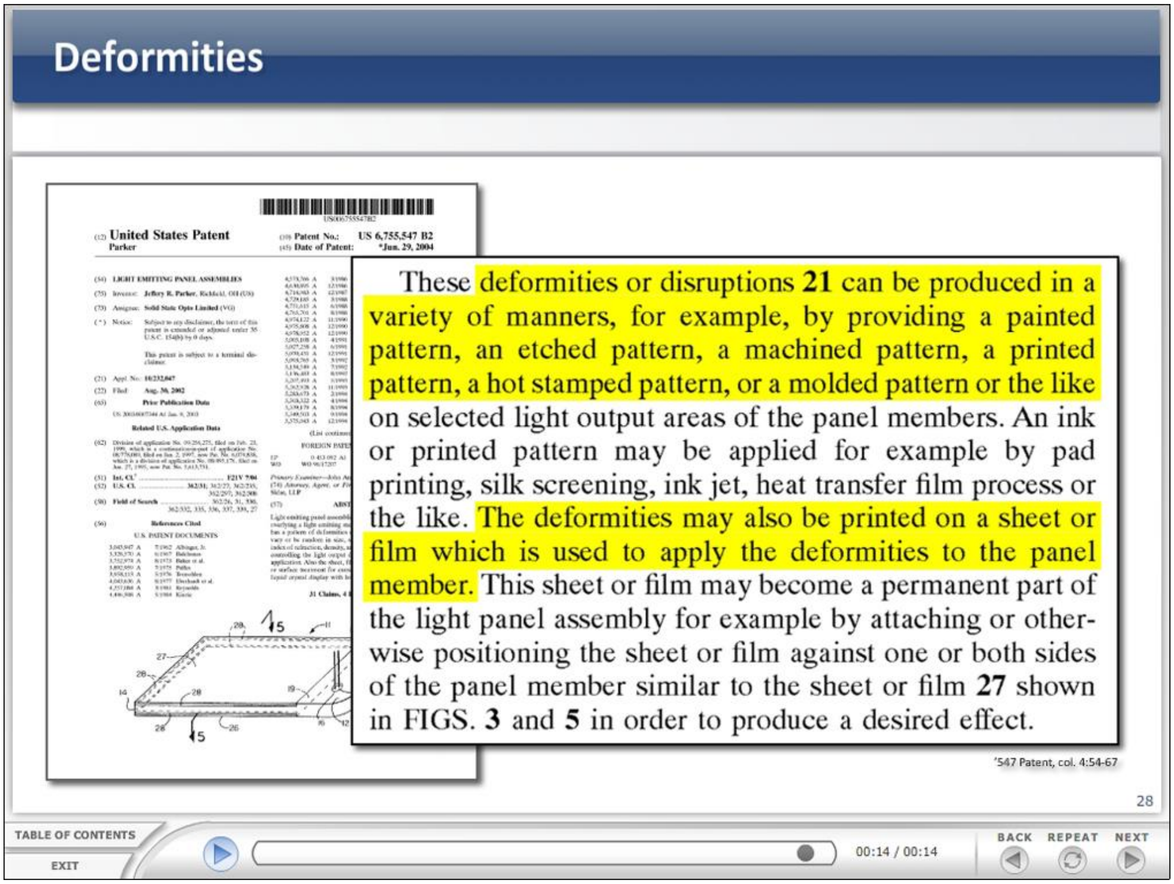
In contrast, on the far end of the panel, fewer light rays remain unextracted, so more or larger deformities, such as denser pattern of deformities, must exist to successfully extract an equivalent number of light rays. Areas of the light emitting panel from which light is extracted are referred to as light output areas in the patents-in-suit.



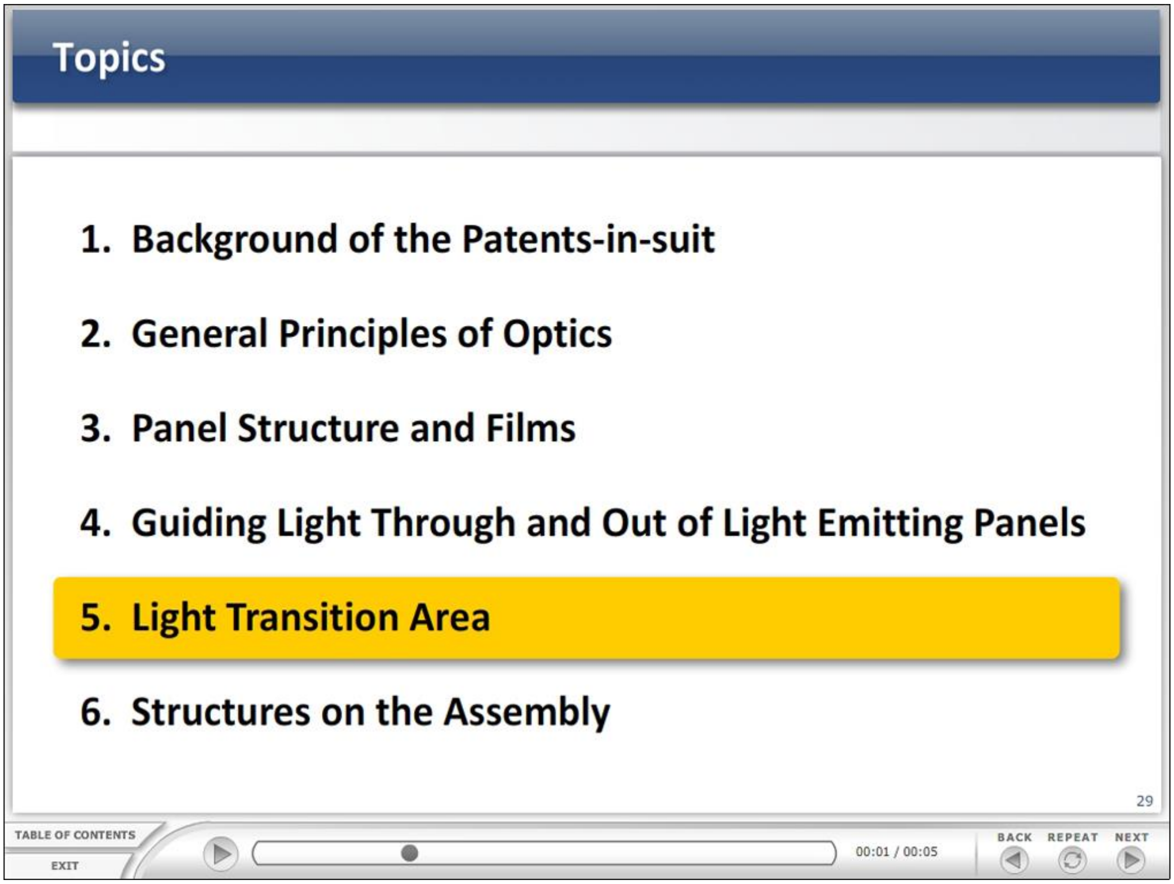
The deformities used to emit light can have different shapes, such as dots, squares, diamonds, ellipses, and stars, and can come in different types, such as prismatic surfaces, depressions, or raised surfaces.



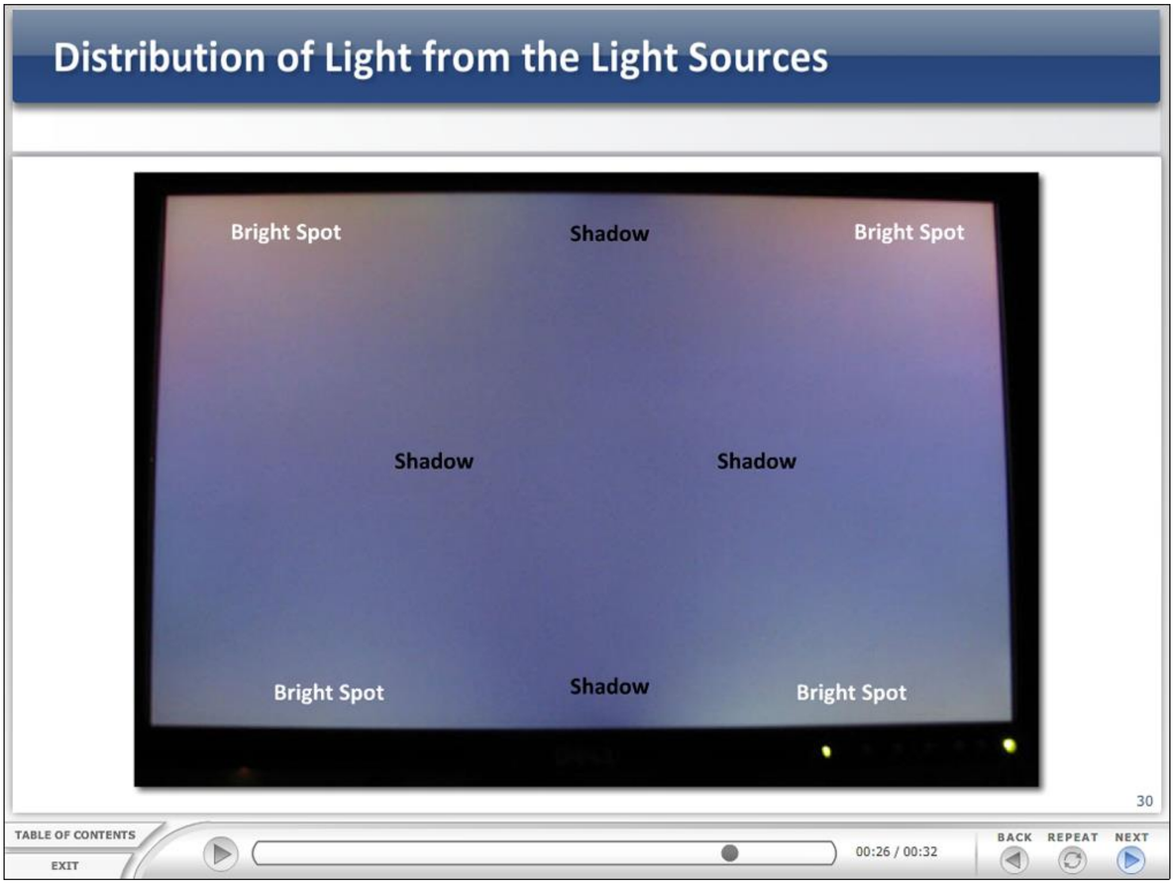
In addition to shape and type, the deformities may be varied in density, opaqueness, translucence, depth, color, area, and index of refraction. By varying the deformities in these ways the light output of the panels can be controlled.



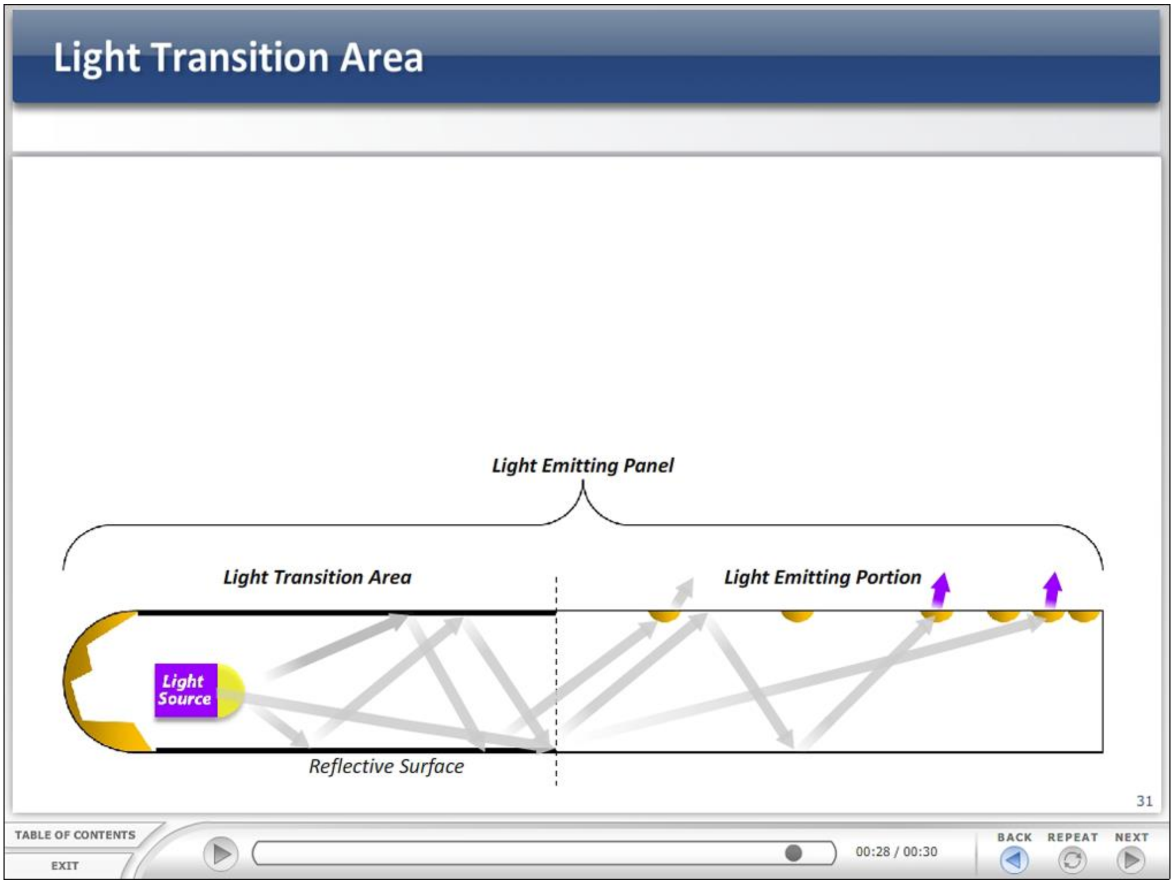
Deformities can be produced in a variety of manners, as explained by the patents-in-suit. For example, the deformities can be a painted, etched, machined, printed, hot stamped, or molded to the panel. The deformities may also be printed on a sheet used to apply the deformities to the light emitting panel.



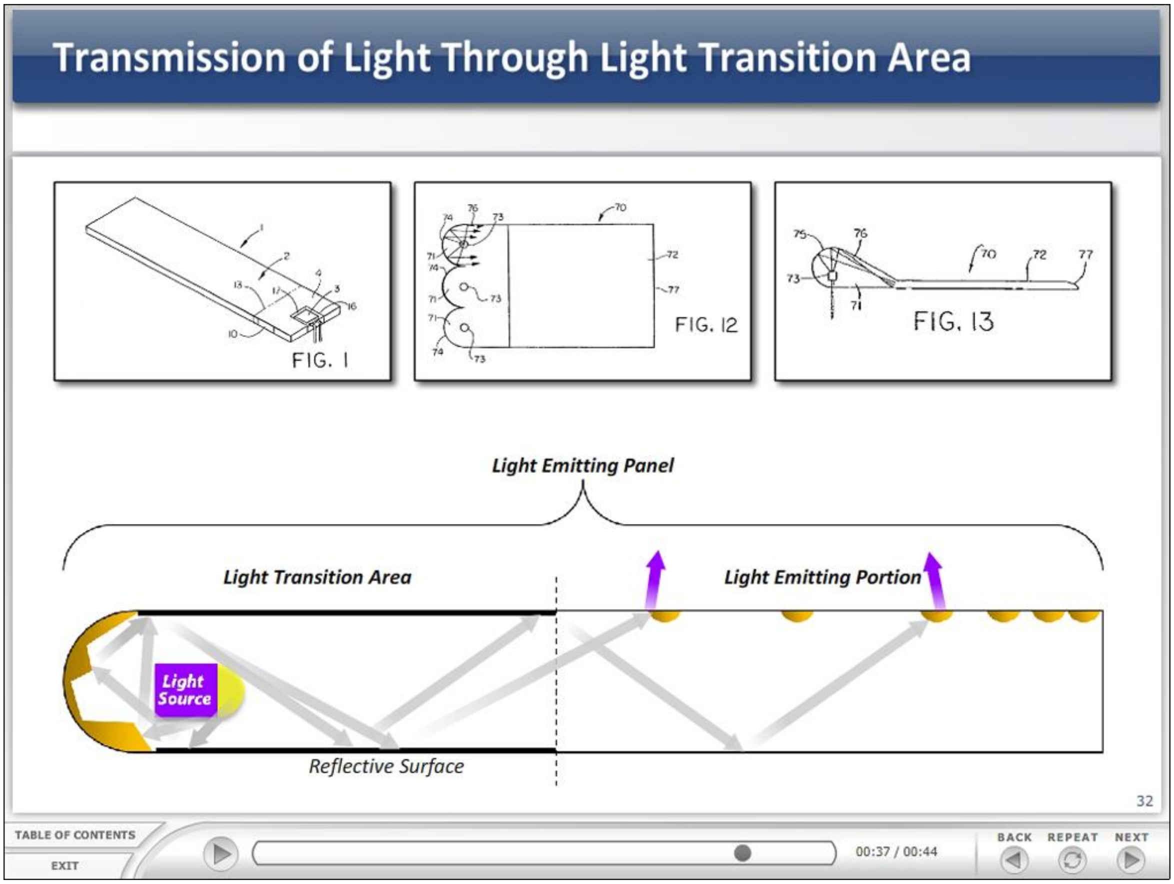
Next we will discuss a light transition area that is used by some embodiments of the patents-in-suit.



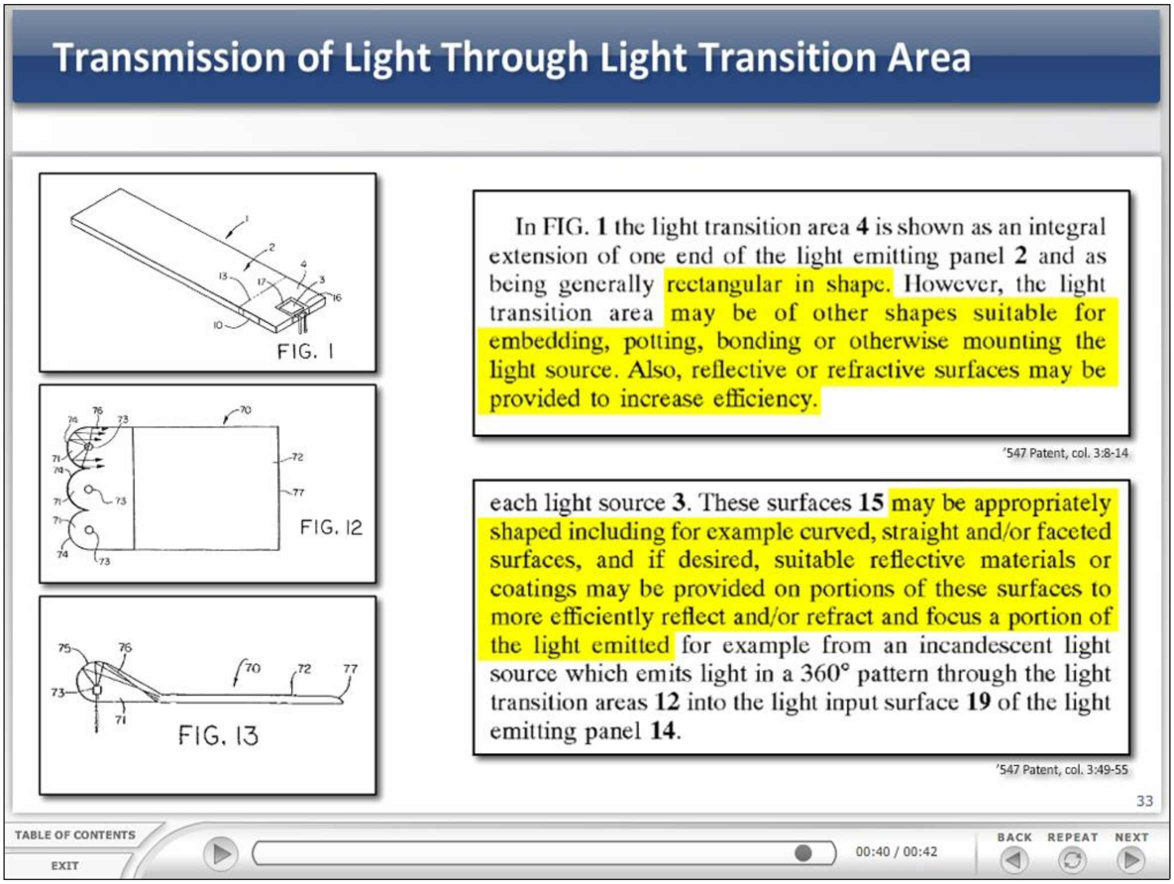
As explained, it is sometimes beneficial to provide the light emitting panel with a uniform distribution of light so that the entire surface of the light emitting panel may be easily viewed in most ambient light conditions. One limitation in achieving a uniform light distribution is that the light radiated by the light source is not uniformly distributed along the edge of the light emitting panel. The light radiated by the light source typically has a bright spot or area of high light concentration. If several lamps are required, the lamps are separated by areas of shadow or low light intensity which may produce light distribution variations in the output of the light emitting panel.



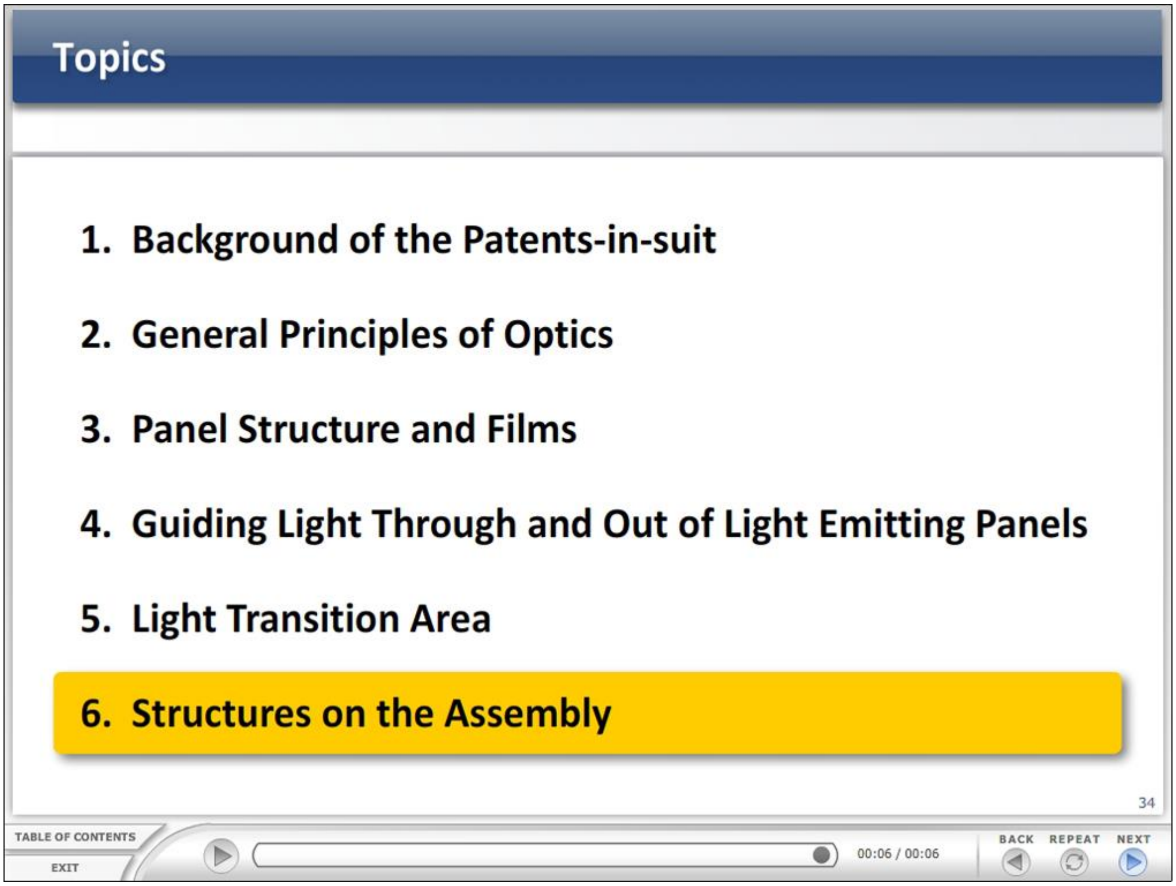
A light transition area is commonly used to solve this problem and uniformly illuminate a light emitting panel. Typically, the light transition area is situated between a light source and the light emitting portion of the light emitting panel. The light source projects light into the light transition area. The light propagates internally through the light transition area and is emitted into the light emitting portion of the panel where light extracting deformities allow it to escape out of the panel.



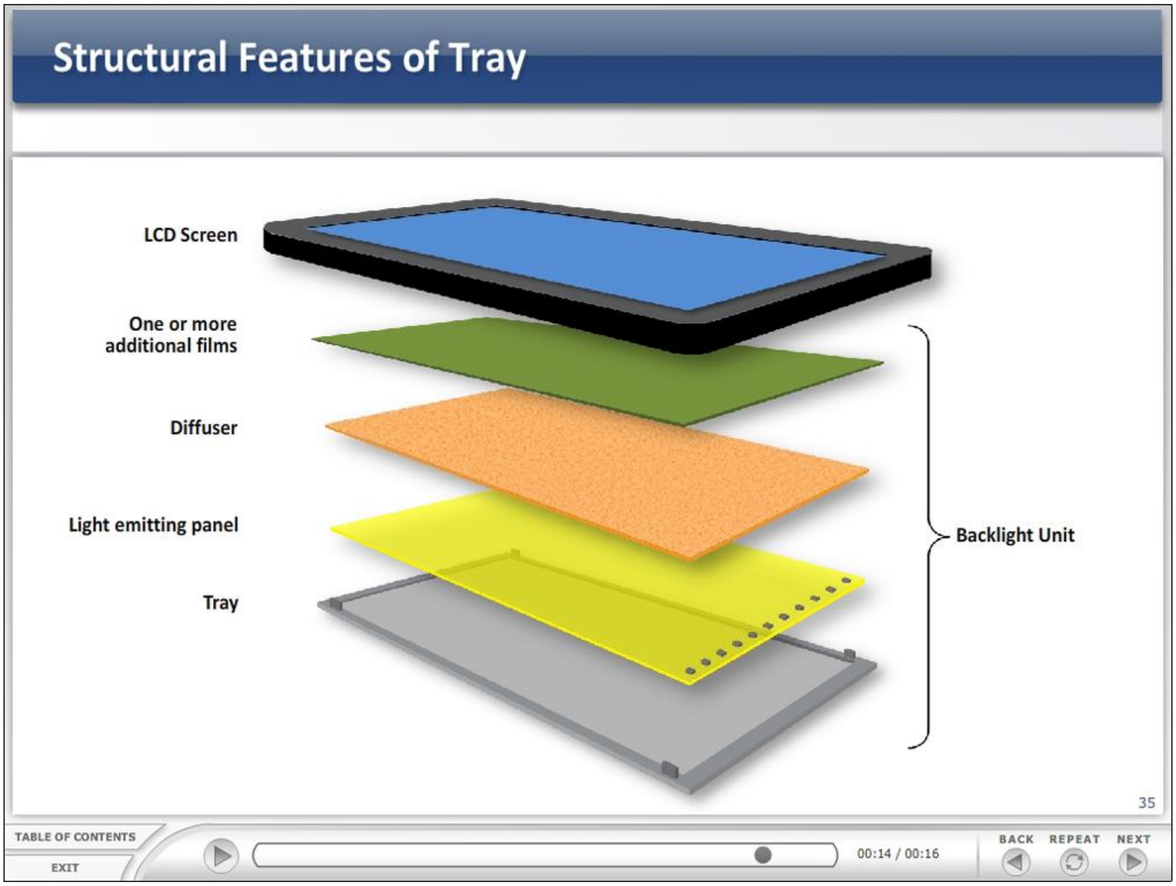
The light transition area may utilize reflective coatings or other surface variations designed to project or redirect light, to increase the amount of light reflected out of the light transition area, and to ensure its uniform distribution. Shaped and faceted surfaces alter the angle of incidence at which light strikes inside the light transition area, thereby altering the angle of reflection. Reflectors or reflective coating may also be used to increase the amount of light reflected through the light transition area. The light will continue to reflect in the light transition area until it encounters the interface of the light emitting portion of the panel at an acceptable angle to allow emission from the light transition area.



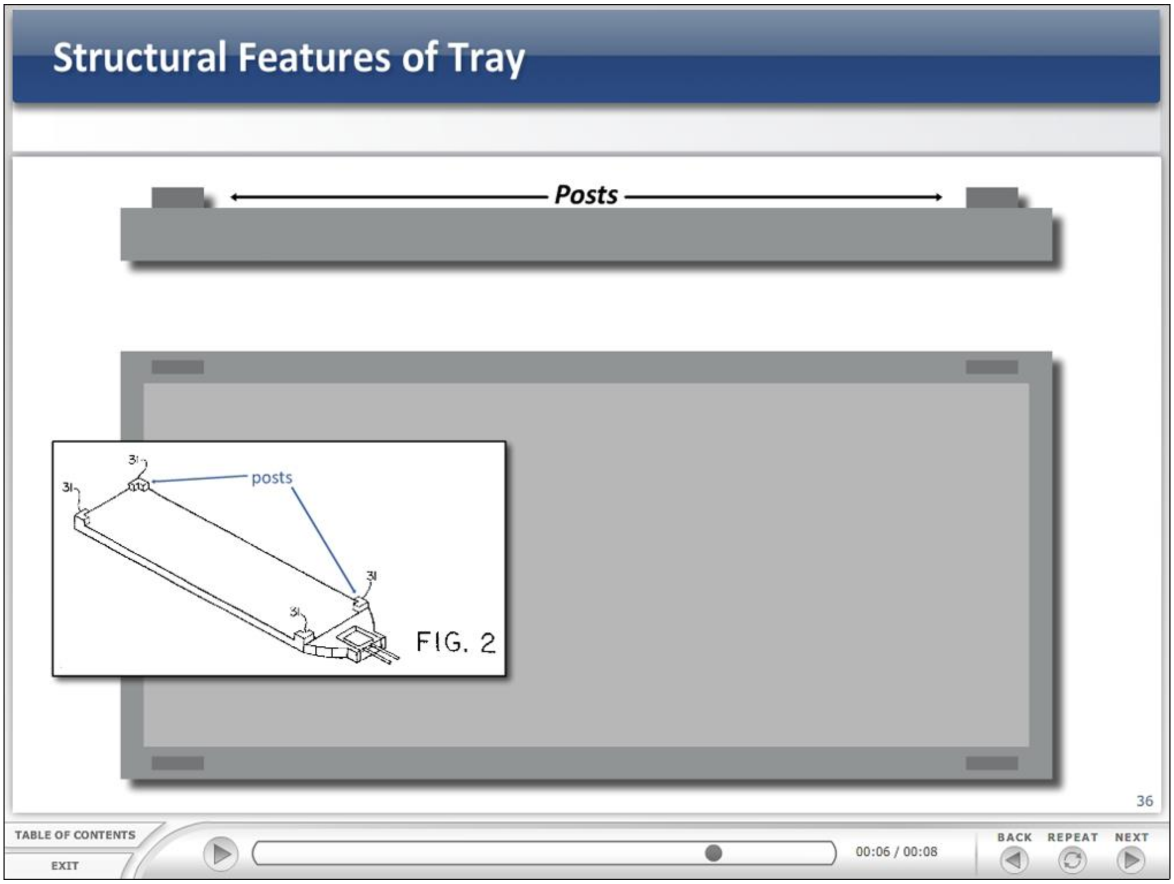
The patents-in-suit describe many instances of light transition areas. The light transition area may be "rectangular in shape… [or] may be of other shapes suitable for embedding, potting, bonding, or otherwise mounting the light source. Also reflective or refractive surfaces may be provided to increase efficiency." The surfaces "may be appropriately shaped including for example, curved, straight and/or faceted surfaces, and if desired, suitable reflective materials or coatings may be provided on portions of these surfaces to more efficiently reflect and/or refract and focus a portion of the light emitted."



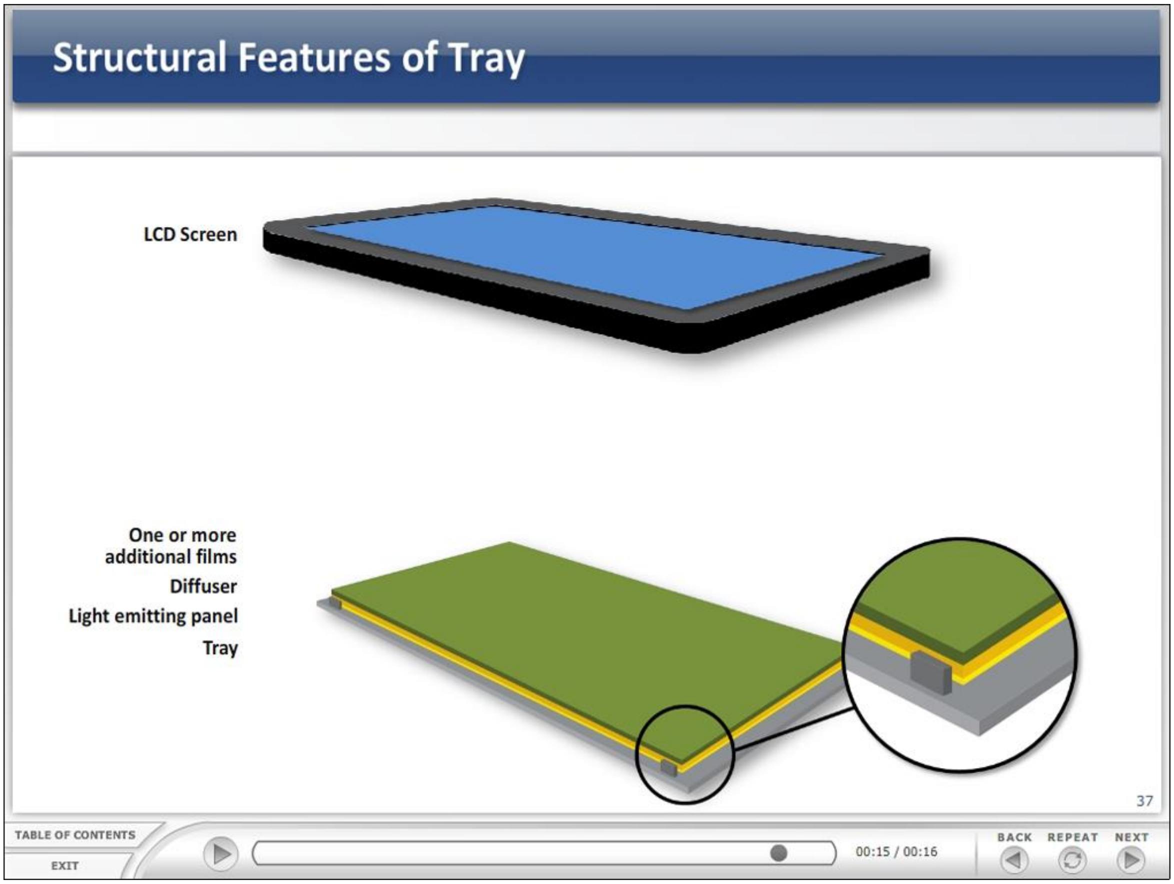
Finally we will discuss certain aspects of the structure of the assembly in some embodiments described by the patents-in-suit.



For assembling purposes in those embodiments, the tray both provides structural support directly to the light emitting panel and structural features, such as posts, that provide structural support for mounting of the backlight unit into a larger assembly.



As shown in the patents-in-suit, these structural features are discrete protrusions that extend outward from the tray.



The '974 patent in particular is directed to this embodiment and discloses a tray that both provides structural support directly to the light emitting panel and has structural features that provide a mount for mounting the backlight unit as shown here.

This concludes Defendants' Technology tutorial.